Massachusetts Year 2002 Integrated List of Waters

Part 3 – Public Comment Responsiveness Document

CN: 125.3

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Ellen Roy Herzfelder, Secretary
Massachusetts Department of Environmental Protection
Robert W. Golledge Jr., Commissioner
Bureau of Resource Protection
Cynthia Giles, Assistant Commissioner
Division of Watershed Management
Glenn Haas, Director

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INTRODUCTION

This report summarizes and presents responses to the comments received on the *Proposed Massachusetts Year 2002 Integrated List of Waters* prepared by the Massachusetts Department of Environmental Protection's (MADEP) Division of Watershed Management (DWM). The new integrated list format represents a departure from past reporting practices under the Clean Water Act (CWA) that entailed the preparation of a *Summary of Water Quality (305b) Report* and a separate *303d List of Impaired Waters*. Rather, the *Integrated List of Massachusetts Waters,* prepared in accordance with EPA guidance released to the states on November 19, 2001 is intended to meet the reporting requirements of both § 305(b) and § 303(d) of the CWA.

The integrated list format provides the current status of all previously assessed waters in a single multi-part list. Each waterbody or segment thereof is placed in one of the following five categories:

1) Unimpaired for all designated uses;
2) Unimpaired for some uses and not assessed for others;
3) Insufficient information to make assessments for any uses;
4) Impaired for one or more uses but not needing a TMDL; and
5) Impaired for one or more uses and requiring a TMDL.

Thus, the waters listed in Category 5 are the 303(d) List and, as such, are reviewed and approved by the EPA. The remaining four categories are submitted in fulfillment of the requirements under § 305(b), essentially replacing the old 305(b) Report format.

The availability for public review and comment of the *Proposed Massachusetts Year 2002 Integrated List of Waters* was noticed in the October 9, 2002 edition of the Massachusetts Environmental Monitor, was posted with the proposed integrated list on the MADEP web site, and was provided to the Massachusetts EOEA Watershed Team leaders. Copies of the document were available from the Division of Watershed Management's Watershed Planning Program office in Worcester and could be found at each MADEP Regional Service Center. The public comment period ended on November 12, 2002. This document summarizes all comments received during the comment period and presents responses to those comments. In most cases, the comments are reprinted here in their entirety; however, some of the longer comment letters were excerpted or paraphrased.

A final version of the *Massachusetts Year 2002 Integrated List of Waters*, incorporating the comments and responses presented here, will be prepared and submitted to the EPA for their approval. The following table presents a list of those who submitted comments and the pages on which they appear in this document.

RESPONSES TO INDIVIDUAL COMMENTS

1) Quaboag-Quacumquasit Lake Association (Donna Grehl, President)

Comment: For approximately twenty years our organization has actively worked with local, state and federal agencies to protect, maintain and improve our waters and surrounding environment. Our membership is two hundred strong and consists mainly of Brookfield, East Brookfield and Sturbridge lakeside property owners. We have spent thousands of volunteer hours and thousands of dollars monitoring and trying to preserve our water quality. Quaboag (North) Pond and Quacumquasit (South) Pond are within a 77 square mile sub-watershed of the greater Chicopee River Basin. They are connected via a channel and North pond is predominately fed by 3 tributaries the Cranberry, the 7-Mile and East Brookfield Rivers. Generations of citizens have considered our Great Ponds to be valuable assets of that support their ecological, recreational and economical activities are increasingly threatened with each passing year.

Therefore, with great appreciation, the QQLA acknowledges and supports our designation as "Category 5" water bodies requiring a TMDL and included in the "List of approval TMDL Documents."

Enclosed please find some of the various expert reports, summaries and photographs the QQLA has collected in the recent past and to date. Their intent is to further educate you of the continual chemical (phosphorus and other toxins) and biological (noxious and exotic aquatic vegetation) degradation our lakes can no longer endure. The designated uses of North and South Ponds will not improve or be maintained without further assessment of the point and non-point sources of pollution that plague them. It is our opinion that the most appropriate approach to solving our problems is through an established TMDL and the implementation of the resulting remediations.

Response: These ponds are both listed in Category 5 for metals. They were not listed for nutrients or other stressors related to eutrophication because no new detailed assessment has been undertaken since the last improvements at the Spencer POTW were completed. Without an assessment based on valid scientific data collected under the auspices of a Quality Assurance Project Plan (QAPP) a definitive listing decision could not be completed. Nonetheless, substantial historical and more recent information suggest that these ponds continue to exhibit excessive plant growth, algae blooms, dissolved oxygen depletion and other characteristics of overly enriched waterbodies, which impact recreational uses and aquatic life. For this reason, the MADEP has scheduled monitoring activities in the ponds, the Quaboag River, the Sevenmile River and Cranberry Brook during the 2003 season to provide data for an adequate assessment of these waters. Furthermore, because the MADEP only monitors the Chicopee watershed every five years, in 2003 the MADEP will also collect additional data and information that would be needed for the development of a TMDL for the upper Quaboag River system because the likelihood exists that these waters will be found to be impaired. A work plan has been prepared for this project and field studies began in November, 2002.

2) Dr. John Portnoy, Cape Cod National Seashore

Comment: I am enclosing publications and data describing high acidity and aluminum non-point source pollution from the tide-restricted portion of Wellfleet's Herring River system. Acidity is severe (e.g. pH 3.5), and aluminum at acutely toxic concentrations, in low flow ditches and creeks. As a result, fish and other aquatic fauna are depauperate. The cause of this problem is tide restriction and ditch drainage since 1909 that has dewatered and aerated the original salt marsh peat causing stored sulfidic minerals to oxidize to sulfuric acid. The consequent generation of "acid sulfate soils" is a common problem world-wide wherever salt marshes are drained, and is particularly severe in Herring River. To support the above, I include some recent aluminum data and the following publications:

Soukup, M. A. and J. W. Portnoy. 1986. Impacts from mosquito control-induced sulphur mobilization in a Cape Cod Estuary. Environmental Conservation 13(1):47-50.

Portnoy, J.W. & A. E. Giblin. 1997. Effects of historic tidal restrictions on salt marsh sediment chemistry. Biogeochemistry. 1997; 36:275-303.

Portnoy, J. and Reynolds, M. 1997. Wellfleet's Herring River: The case for habitat restoration. Environment Cape Cod. 1:35-43.

Portnoy, J.W. 1999. Salt marsh diking and restoration: Biogeochemical implications of altered wetland hydrology. Environ. Manage. 24:111-120.

Response: The literature cited above provides evidence of water quality problems in the Herring River that have their origin in historical diking and ditching practices used for controlling mosquito infestations. Acidic conditions and resulting mobilization of metals have led to the presence of aqueous aluminum at toxic concentrations. Results of a cursory water quality survey performed by DEQE (now DEP) back in 1983 suggested that water quality standards violations may have been occurring as the result of this phenomenon but the data were insufficient and may have been considered outdated nine years later when the first 303(d) list was produced. Nonetheless, this historical information, coupled with more recent research conducted by the National Park Service and others, indicate that impairment to aquatic life persists in the Herring River and that this should be acknowledged in the Massachusetts List of Impaired Waters. Furthermore, whereas the pollutant (i.e., aluminum) itself is naturally occurring, the acidic conditions leading to its presence in harmful quantities are the results of man's activities. For this reason the Herring River will be placed in Category 5 in the Final List with pH and metals listed as stressors. It is not clear at this time whether a conventional TMDL is the appropriate evaluative tool for formulating a remedy for the Herring River. However, it is hoped that its listing will foster awareness and promote the development of a suitable strategy for correcting this problem.

3) Tim Watts, Middleborough, MA

(Note: Mr. Watts wrote at length about his experiences and observations on the Taunton River and its tributaries and, in many cases presented citizen monitoring data from the Taunton River Watershed Alliance (TRWA) and photographs to corroborate his comments. From his letter it is clear that he is deeply concerned about the present and future status of this watershed and would encourage any and all efforts to restore and preserve its water resources. Space constraints prohibit printing his letter here in its entirety. Rather, an attempt has been made to highlight comments aimed at specific waterbodies or segments and perceived impairments. Actual water quality data from the TRWA and other sources included in the comment letter are not reprinted here.)

Summary of comments: Beginning with the uppermost segment of the Salisbury Plain (ma62-05) which is listed for siltation, pathogens and suspended solids I will work down stream. The segments below here down to and including the upper Taunton Great River segment should also be listed as impaired by siltation. Most of the riverbed in the lower segments (ma62-06, ma62-32, ma62-01) consists of deep shifting sand and sediments, except at the few spots that contain high gradient rocky riffles. The cause of this seems to be extreme flows from excessive storm water run off which cause large portions of the stream banks to slump into the river. Why is siltation not listed as a cause of impairment of these lower segments? …It also appears that suspended solids should be listed as an impairment on these lower segments. According to testing done by the Taunton River Watershed Alliance these lower segments consistently tested higher for suspended solids than the upper Salisbury Plain. …In the case of pathogens it seems that the upper segment of the Taunton Great River should also be listed as impaired by pathogens. Both the Matfield and Salisbury Plain are listed as such. Monthly testing by the TRWA in the year 2000 also appears to support listing this segment as impaired by pathogens. USGS sampling at the Titicut St., gauging station also recorded high fecal readings in this segment. Why has the uppermost segment of the Taunton Great River not been listed as impaired by pathogens? …Dissolved oxygen also may be a problem in these segments. During the 1999 BSC-WAL over night Hydrolab Minisonde Study several sites in these segments had DO level's drop below acceptable levels…. It is worth noting that the Pleasant St. sample site is at the base of a very long stretch of riffles. This is just below where benthic macroinvertebrate biomonitoring surveys were done in 1996. The author of that survey said the following

in his report regarding this site "with an EPT index of only 1 and a taxa richness of only 6, it would be unconscionable to place TR03 anywhere near the nonimpaired category."…During the same study done in the year 2000 similar instances of low DO were found…Testing done by the USGS at the Titicut St, gauging station also suggest there may be DO problems in upper Taunton Great River segment. …It also appears that high nutrient loads and organic enrichment impair these segments. The rocky riffle sections of these segments all sport thick blankets of algae, sponge's, scum (for lack of a better word) and other sorts of weird substances that are not commonly found in clean rivers…The waters color and clarity is not what it should be in this segment either. Rather than being the rich amber color of it's contributing tributaries, it is more often than not a brownish gray, dingy color like that of the Matfield.

Response: Comprehensive statewide reporting elements required by the Clean Water Act, such as the 305(b) Summary of Water Quality Report, the 303(d) List of Impaired Waters - or in the case of the 2002 report, the integrated list of waters satisfying both requirements - are submitted to the EPA every two years. At the same time, the MADEP continuously conducts watershed assessments in accordance with the Massachusetts watershed management cycle resulting in new individual watershed assessments once every five years. Thus, for any CWA reporting cycle, only about 40% of the watersheds are represented by new assessments that were completed since the previous CWA reports were promulgated. In the case of the Taunton River watershed, no updated assessment was available to be used in developing the 2002 Integrated List of Waters. As a result, the listing status of the waters in this basin is based on historical information dating back five years or more, and does not reflect more recent information that may be available to support a new assessment. Thus, with the exception of the broad-scale adjustments to the 303(d) list that were applied to all watersheds in 2002, the 303(d) listing of Taunton waters remained essentially unchanged from the 1998 version. Nonetheless, several segments of the Taunton River and selected tributaries are on the 303(d) list for many of the stressors cited in the comment and the next watershed assessment should augment what is already known.

In 2001 the MADEP performed water quality and biological monitoring (including habitat assessment) throughout the Taunton watershed. Many of the segments discussed in the above comment were included in these surveys. Moreover, standard water quality constituents, such as dissolved oxygen, coliform bacteria, and nutrients, were included that can be compared with the findings of the Taunton River Watershed Alliance and other interested parties. Results of these surveys are not yet available but it is the intent of the MADEP to complete a new Taunton watershed assessment before the next integrated list of waters is due to the EPA in 2004. In performing this assessment the MADEP will rely on the results of the above-mentioned surveys as well as other sources of data and information. To this end, the MADEP will accept and review data and information pertaining to the quality of the waters in the Taunton watershed from any and all sources. However, for external sources of information the MADEP requires the following for listing purposes: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described**,** and 4) the information is documented in a citable report that includes QA/QC analyses. Nonetheless, data collected without a QAPP will still be reviewed and used to corroborate other monitoring results and to identify potential problems that are in need of further investigation. Therefore, while not strictly adhering to the requirements for external data cited above, field observations and anecdotal information such as that provided throughout this comment will be useful when planning monitoring efforts in the future.

4) EOEA Chicopee River Watershed Team (Paul Lyons, Team Leader)

Comment: I like the idea of (eventually) including all waterbodies in one report. However, it would be helpful if a single, complete list of all waterbodies (maybe organized by major watershed) that are included in the report were added as a cross reference (perhaps as an appendix?). That way, a reader could easily look up a waterbody of interest, and find out what category that waterbody was listed under.

Response: A cross-reference of all waterbody segments will be developed and reported by major watershed in an appendix to the Integrated List.

Comment: I understand that EPA established the categories to be used in this listing, but I'm concerned about having the "303(d)" waterbodies divided into two categories (i.e., Category 5 and Category 4a). In several places in the document, reference is made to Category 5 constituting the "303(d) list", yet in actuality, Category 4a waterbodies are also part of that list. Since grant programs are sometimes targeted to "303(d) listed waterbodies", it will be important to either keep all those waterbodies in one category (e.g., why weren't waterbodies for which a TMDL was completed put in a "Category 5a"?), or clearly state in those grant announcements that eligible waterbodies include those in both Category 5 and 4a. The bottom line is that 4a waterbodies must not be discriminated against in grant decisions.

Response: The MADEP utilized the listing categories provided in the EPA guidance for developing integrated lists of waters. As such, "303(d)" waterbodies are those still in need of one or more TMDLs and, therefore, listed in Category 5. Legally, waters with approved TMDLs (Category 4a) are no longer 303(d)-listed waters whether or not they are still impaired. Nonetheless, it is MADEP policy to focus grant programs on any impaired waters and, therefore, waters listed in categories 4a, 4c and 5 are all eligible to receive grant monies directed at their restoration. This policy will be reflected in future grant announcements.

Comment: It would be helpful to include either a list, or at least a reference to, the "pollutants" of concern, since this serves as a basis for some classifications (e.g., for Category 4c).

Response: The CWA distinguishes between "pollutants" such as nutrients, metals, pesticides, solids and pathogens that all require TMDLs and "pollution" such as flow alterations, habitat alterations or non-native species infestations that do not require TMDLs. Some stressors, however, may be interpreted on a case-by-case basis for purposes of placing waters on the Integrated List.

Comment: The process used to classify lakes and ponds seems a little subjective, and should be explained better. For example, what "percent coverage" of a lake by nuisance aquatic plants triggers its inclusion on the list? Are synoptic surveys adequate to base such important decisions on? What other plant species (i.e., other than "algal mats or plants such as water meal or duckweed" – page 7 of 137) were used to differentiate between categories 5 and 3? How did MDEP determine that certain conditions "implied" (page 7 of 137) that the plant problem was related to excess nutrients and not just normal eutrophication? I think a better (and objective) explanation of how lakes and ponds were classified is needed.

Response: The premise underlying the decision to remove several lakes from the 303(d) list is exactly what is suggested by this comment. Specifically, this question was presented to a statewide TMDL Steering Committee who determined that, indeed, synoptic surveys are not adequate to make listing decisions and that the MADEP will have to develop a more comprehensive lake assessment methodology in the future. Lakes were moved to Category 3 because of uncertainty pertaining to whether use impairments actually exist and, if they do, whether they are caused by one or more pollutants that are amenable to TMDLs. Historically, ten percent coverage by macrophytes was interpreted as an impairment of the recreational use but, again, this was not used as a sole determinant for listing a lake in Category 5. Lakes supporting populations of algae and macrophytes, such as duckweed and water meal, that are known to exhibit blooming conditions in response to excessive nutrient loadings were presumed to be in need of TMDLs and were retained on the 303(d) list. No other species of plants were used to make this particular distinction.

Comment: I understand that EPA required MDEP to differentiate between native and non-native nuisance aquatic plants, and that waterbodies affected by the latter were placed in Category 4c. If true, this seems counter-productive to the goal of fixing our most impaired waterbodies. Why should it matter if a nuisance plant problem involves native or non-native species when classifying a particular waterbody? Shouldn't we be as concerned (maybe even more concerned) about non-native invasions as we are about native invasions?

Response: Placing waterbodies in Category 4c should not diminish the concern that there is some impairment to the designated uses. From a planning and management standpoint, however, certain

stressors (including exotic species) are not amenable to the development of a TMDL. These stressors require other methods to treat them. The EPA has determined that the presence of exotic species constitutes an imbalance to aquatic communities independent of nutrient enrichment.

Comment: One of the main concerns about the new list will relate to why certain waterbodies were removed from the "303(d) list". Thus, the rationale for doing so should be clearly addressed in the report. In fact, I think it would be very helpful to provide specific justifications for all waterbodies that were moved from Category 5 to another category (other than 4a) since such moves could have important implications for the attention and resources that a particular waterbody gets in the future. For example, why was Dimmock Pond removed from the previous 303(d) list and put in Category 3? And why was Browning Pond put in 4c, even though a TMDL was done for it, and there are multiple sources of impairment (including some that are listed in Category 5 as being "pollutants needing TMDL")? Conversely, Spectacle Pond in Wilbraham appears to be in fairly good condition, yet that waterbody was left in Category 4a. It seems that better explanations are needed for some of these decisions.

Response: While the Integrated List categorizes individual waters according to their assessment status, it is the intent of the MADEP to provide the detailed rationale and documentation of the use assessments in the individual watershed assessment reports that are prepared in "Year 3" of the watershed cycle. With the few exceptions that are described in the Introduction of Part 2 of the Integrated List, those waters that are identified in the assessment reports as not fully supporting their uses due to the presence of one or more pollutants are listed in Category 5 unless they already have an approved TMDL. For the particular examples raised here, Dimmock Pond was found to be supporting the assessed uses (i.e., recreational and aesthetics) during the most recent Chicopee watershed assessment with noxious plants coverage being within an acceptable range. No additional data were available to support continued listing. While Browning Pond did have a TMDL completed for nutrient-related stressors, there is still a non-native plant species present, which is considered to impair the pond. Non-native plants (i.e., exotic species) are considered "pollution" and so the pond is listed in Category 4c. Finally, Spectacle Pond had previously been listed due to noxious plants and so the MADEP completed a TMDL for this pond. It is likely that this pond would have been included among those to be de-listed, however, since a TMDL had already been completed it seemed important to acknowledge that fact by listing it in Category 4a.

5) Charles River Watershed Association (Anna Eleria, Project Engineer)

Comment: While MA DEP was able to produce a five-category list in accordance to EPA guidelines, they were not able to implement several provisions for the 2002 Integrated List of Waters. For example, the lakes and ponds that were historically listed as impaired solely on the basis of "nuisance aquatic plants" coverage were moved to Category 3 because insufficient information existed to make assessments for any uses. Therefore, MA DEP is developing a more comprehensive lake assessment process. In addition, the priority ranking and TMDL schedule for Category 5 waters was not included as part of the 2002 Integrated List of Waters because the TMDL Strategy of 1998 has not been revised yet. CRWA strongly recommends that these issues be resolved prior to the future reporting of the 2004 Integrated List of Waters and comprehensive assessments of waterbodies continue on the 5-year cycle to ensure a complete listing of waters that accurately reflects the health status of the Charles River watershed.

Response: Lakes were moved to Category 3 based on a preliminary assessment that the plant growth is not caused by excessive nutrient loading and that there is insufficient information available to determine whether the lakes are impaired. The MADEP requested guidance on this issue from the statewide TMDL Steering Committee and the committee recommended this approach. The MADEP is committed to developing a more comprehensive methodology for performing lake assessments in the future. Lakes will be monitored and assessed as resources allow. However, the 2004 reporting cycle will likely include new assessments from watersheds for which monitoring activities were already completed in 2000 and 2001. A lag period will likely occur between the time the new assessment methodology is developed and monitoring methods are adjusted to provide the requisite data to support that methodology, and the time the actual monitoring data become available. While a general priority ranking for TMDL development

does exist for the 2002 Integrated List of Waters, the MADEP hopes to complete a more detailed prioritization before the next listing cycle.

6) Mystic River Watershed Association (Libby Larson, Mystic Monitoring Network Coordinator)

Comment: We have compiled … data which support … inclusion of Mill Brook (Arlington) as needing a TMDL for pathogens and nutrients. The Mystic Monitoring Network (MMN) has been monitoring Mill Brook for over two years, and has documented numerous occasions on which Mill Brook has violated the MASWQS for fecal coliform. The geometric mean for the samples collected 7/2000 – 5/2002 is 1,106 cfu/100 ml, and on several occasions the results have been over 10,000 cfu/100 ml. More recent monitoring we've done along the length of the Brook in August 2002 has shown two places with 20,000 cfu/100 ml and 84,000 cfu/100 ml. MMN monitoring at Mill Brook has shown that there is an average of 1.24 mg/L as N of nitrate + nitrite, and 0.10 mg/L as P of total phosphorous in the water. While there are no established water quality standards for these parameters, we feel that these results are significantly elevated above normal background levels.

Response: Upon review of these and other MMN data that met MADEP's criteria for accepting data from external sources, the MADEP concurs with the recommendation to list Mill Brook on the 303(d) List (i.e. Category 5) for pathogens. This will be reflected in the final version of the Integrated List. As acknowledged, there are no numerical standards for nutrients in the Massachusetts Surface Water Quality Standards and the MADEP does not place waters on the 303(d) list solely on the basis of nutrient concentration data at this time. Narrative criteria for nutrients at 314 CMR 4.05 (5)(c) and the antidegradation provisions at 314 CMR 4.04(5) prohibit the discharge from point sources of nutrients in amounts that would promote the accelerated growth of algae or aquatic plants ("encourage cultural eutrophication") and require best management practices for the control of nonpoint sources of nutrients. On a case-by-case basis the MADEP will use evidence of eutrophic conditions, such as wide ranges in dissolved oxygen concentration, elevated chlorophyll values or biological surveys (in combination with nutrient concentrations) that reveal algae or plant "bloom" conditions that result in one or more impaired uses, to add waters to the 303(d) List. However, nutrient concentrations above normal background levels do not, in and of themselves, constitute use-impairment. Nonetheless, these data can be used to highlight potential problem areas in need of further monitoring and assessment.

Comment: We have compiled … data which support … inclusion of Wellington Brook (Belmont/Cambridge) as needing a TMDL for pathogens. Sampling done by the MMN along Wellington Brook in December 2001 yielded several results with elevated bacteria counts: behind the Library at Common Street was 65,000 cfu/100 ml; at the south-west corner of Claypit Pond the result was 9,455 cfu/100 ml; at the north outlet of Blair Pond just before the railroad, the result was 9,091 cfu/100 ml.

Response: The MADEP was aware of these data at the time the Boston Harbor Water Quality Assessment Report was in preparation. However, the MADEP decided not to include this brook in the assessment report because the MMN data were not submitted in accordance with MADEP requirements for external data sources. The data appear to be the results of a one-time screening level sampling effort that was not described in the MMN QAPP nor were the results presented in a citable report. While the data certainly suggest that there may be water quality problems causing use impairment in Wellington Brook, the MADEP cannot complete a definitive recreational use assessment and listing decision on the basis of a single sampling event. Future sampling of this waterbody should help to confirm its use status.

Comment: We have compiled … data which support … addition of the pollutants arsenic and nutrients for the Aberjona River listing. Harold F. Hemond, in his article "Movement and Distribution of Arsenic in the Aberjona Watershed" (Environmental Health Perspectives 103, Supplement 1, February 1995, 35 – 40), found that "there are numerous possibilities for past and present human exposure to arsenic on the Aberjona watershed." Hemond estimates that "the annual flux of riverborne arsenic at [Aberjona at I –95], determined on the basis of monthly measurements from February 1992 to January 1993, as 92 kg. The annual flux of arsenic at a USGS gaging station several kilometers further down-stream was not distinguishable from the flux at the Rt. 95 site during this period, suggesting that the majority of arsenic in

the river originates north of this site." The MMN collects samples at 3 locations along the Aberjona: at Salem St., Woburn; at Washing St., Winchester; and at the USGS station in Winchester. Nitrate + nitrite concentrations were 1.16, 1.87, and 1.78 mg/L as N at these locations, respectively. Total phosphorous concentrations were 0.07, 0.06, and 0.06 mg/L as P, respectively. Again, while there are no established water quality standards for these parameters, we feel that these results are significantly elevated above normal background levels.

Response: The MADEP is unable to list arsenic as a stressor for this segment based on the information provided in this comment. It is difficult and even inappropriate when making comparisons to water quality standards or criteria to utilize research data collected for other purposes. The DWM will accept and review data and information pertaining to the quality of Massachusetts' waters if the following are provided: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. Often this kind of information cannot be obtained directly from published journal articles. Nonetheless, the MADEP relies on EPA criteria for metals, such as arsenic, when making use support decisions. These criteria, usually presented as aqueous concentrations, pertain to specific water uses as designated in the Massachusetts Surface Water Quality Standards. For example, EPA arsenic criteria for the protection of freshwater aquatic life are based on arsenic concentration and, therefore, variables such as the annual flux of total arsenic cannot be used to make direct comparisons with those criteria. Furthermore, it is specified in the Massachusetts' water quality standards that "the Division shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction of metals". Other EPA criteria for arsenic pertain to different media (e.g., fish flesh) and/or uses (e.g., drinking water). Data on arsenic content in edible fish tissue are needed to assess the fish consumption use. And, since the Aberjona River is not designated as a drinking water supply, the drinking water criterion for arsenic is not applicable. While it may be the case that "there are numerous possibilities for past and present human exposure to arsenic on the Aberjona watershed" this should be confirmed by performing a human health risk assessment using data from a study designed for that purpose.

As previously noted, elevated nutrient concentrations do not, in and of themselves, constitute use-impairment. However, the MADEP Boston Harbor Water Quality Assessment Report identified impairment of the aquatic life use of the Aberjona River due to loss of habitat, an impaired macroinvertebrate community, low dissolved oxygen content and high nutrient concentrations. This suggests that "nutrients" were inadvertently omitted as a stressor from the Proposed 2002 Integrated List. It will be included in the final version.

Comment: We have compiled … data which support … inclusion of the Upper and Lower Mystic lakes for arsenic and nutrients. Hemond notes that "elevated arsenic concentrations were observed in superficial sediments from both the Upper and the Lower Mystic Lakes… Superficial [sedimentary] arsenic concentration is approximately 200 mg/kg… [Water column] arsenic concentration was found to range from approximately 1 µg/L during the colder months to approximately 1.3 µg/l during the warmer months." The MMN collects samples near the dam between the Upper and Lower Mystic Lakes in Medford. Nitrate + nitrite concentrations average to 0.96 mg/L as N, and total phosphorous concentrations average to 0.04 mg/L as P. Again, while there are no established water quality standards for these parameters, we feel that these results are significantly elevated above normal background levels. Additional studies by D. B. Senn (Coupled arsenic, iron and nitrogen cycling in arsenic-contaminated Upper Mystic Lake. Ph.D. dissertation. Department of Civil and Environmental Engineering. Massachusetts Institute of Technology, 2001) show elevated levels of nitrate and ammonium, as shown in the following figures: (*Note: figures not reproduced here)*

Response: As explained above, it is often difficult to determine whether data in published journal articles that were collected to meet different research objectives are appropriate for making comparisons to water quality standards. In addition, data quality objectives, QA/QC data and other supporting information are not typically provided in a format that would be useful to the MADEP. While the above comment points to the need for a more thorough investigation of the Mystic lakes, there is insufficient information presented

here for the MADEP to conclude that arsenic and nutrient concentrations are impairing the designated uses of those lakes. As explained in the previous response, the MADEP relies on EPA aquatic life criteria expressed as dissolved arsenic concentration. While not specified whether total or dissolved, the arsenic values reported in the above-referenced research are much lower than the EPA criteria for water column arsenic concentrations. The MADEP will not 303(d)-list a segment solely on the basis of sediment metal concentrations because no standards have been adopted for aqueous sediments. However, the MADEP does screen sediment data, when available, using Canadian guidelines published by the Ontario Ministry of the Environment. Once again, it is difficult to determine from the above comment whether the sampling and analytical methods used are appropriate for comparison to these guidelines.

As explained in more detail above, the MADEP does not place waters on the 303(d) list solely on the basis of nutrient concentration data. On a case-by-case basis the MADEP will use evidence of eutrophic conditions, such as wide ranges in dissolved oxygen concentration or biological surveys that reveal algae or plant "bloom" conditions that result in one or more impaired uses, to add waters to the 303(d) List. However, nutrient concentrations above normal background levels do not, in and of themselves, constitute use-impairment. Nonetheless, these data can be used to highlight potential problem areas in need of further monitoring and assessment.

Comment: We have compiled … data which support … inclusion of arsenic for Spy Pond (Arlington). The following figure, from Gawel, JE, DB Senn, K MacLaughlin, H Lukacs, and J Durant, "Phosphorous and arsenic in Spy Pond: characterization and cycling" submitted to the Town of Arlington, MA and the MA Department of Environmental Management, February, 1, 2002, illustrates how elevated the arsenic levels are in Spy Pond. (*Note: figure not reproduced here)*

Response: The responses pertaining to arsenic provided above for the Aberjona River and Mystic lakes are also applicable to Spy Pond. The data and information referenced in this comment were not submitted to the MADEP at the time that the Boston Harbor assessment was in preparation nor do they meet the minimum requirements of the MADEP for accepting data from external sources. It cannot be determined from the figure provided whether the sampling and analytical methods used are appropriate for comparison to water quality criteria, but it can be seen that the arsenic data are not reported in a format that would allow for such a comparison.

7) Parker River Clean Water Association (Donald H. Bade, President)

Comment: Of particular concern are:

Parker River, source in Boxford to Central Street, Newbury – Flow impairment. Bull Brook – is a trout fishery from headwaters to inlet of Reservoir. Egypt River – experiences flow impairment and loss of fisheries (historic alewife and smelt runs have been severely impaired due to flow alteration and prior releases of toxic chemicals). Should be moved to Category 5.

Response: The Parker River from its source in Boxford to Central Street, Newbury (segment MA91-02) is listed in Category 5 with metals and flow alteration as stressors. Bull Brook is currently unassessed and therefore appears in Category 3 of the Integrated List. The Massachusetts Surface Water Quality Standards designate Bull Brook as Class A High Quality water but do not specify a warm-water or cold-water fishery designation.

Insufficient water quality data and related information were available to make an assessment of the Egypt River as part of the most recent MADEP Parker River watershed assessment. However, the aquatic life use was placed on "alert status" in the assessment report due to the magnitude of water withdrawals by the Ipswich Water Department. The segment could not be listed in Category 5 solely on the basis of impairment from flow alteration because flow is not a pollutant requiring a TMDL. The river could be listed in the future in Category 4c, however, if the aquatic life use is determined to be impaired. Documentation of "prior releases of toxic chemicals" to the Egypt River has not been provided to the MADEP in the past but should be submitted for consideration in future assessments.

8) Chantal M. Lefebvre, University of Massachusetts – Boston

Comment: … the Aaron River Reservoir is considered Category 5 because it is subject to site-specific DPH mercury advisories (see bottom of page 5, Part 2 – Proposed Listing of Individual Categories of Waters and Page 32, Part 1 – Context and Rationale for Assessing and Reporting the Quality of Massachusetts Surface Waters). However, the Aaron River Reservoir is not listed for metals in the Category 5 table. Rather, the Aaron River Reservoir is listed Category 3 (see page 46, Part 2 – Proposed Listing of Individual Categories of Waters). It is my understanding that it should be Category 5, and I would appreciate clarification that this is correct or an explanation if this assumption is wrong. To test my assumption, I cross-referenced a select number of other water bodies that are also subject to site-specific DPH mercury advisories to verify that they are also listed in the Category 5 table. I did not find any similar discrepancies, although they might exist.

Response: Twenty-one (21) drinking water reservoirs that are currently covered by site-specific DPH health advisories pertaining to fish consumption were omitted from the originally proposed list and will be added to Category 5 of the final list. They are listed in the table below.

RESERVOIR	MUNICIPALITY	RESERVOIR	MUNICIPALITY
Pottapaug Pond Basin	Petersham	Kenoza Lake	Haverhill
Quabbin Reservoir	Petersham/Pelham/Ware/Hardwick/ Shutesbury/Belchertown/New Salem	Millvale Reservoir	Haverhill
Sudbury Reservoir	Southborough/Marlborough	Lake Pentucket	Haverhill
Mill Pond	Burlington	Upper Naukeag Lake	Ashburnham
Lake Attitash	Amesbury/Merrimac	North Watuppa Pond	Fall River
Chadwick's Pond	Haverhill/Boxford	Wachusett Reservoir	Boylston/West Boylston/Clinton/Sterling
Lake Cochichewick	North Andover	Great South Pond	Plymouth
Crystal Lake	Haverhill	Aaron River Reservoir	Cohasset
Haggets Pond	Andover	Somerset Reservoir	Somerset
Hoveys Pond	Boxford	Monponsett Pond	Halifax
Johnsons Pond	Groveland/Boxford		

9) Massachusetts Water Watch Partnership (Jerry Schoen and Francoise Walk)

Comment: On page 13, in the section on Volunteer Monitoring Programs, the following statements are made:

"The EOEA Watershed Initiative has responded to this need by providing monetary support for regional monitoring support centers at university laboratories, for example, and by administering a grant program to build the monitoring capacity of individual groups. A Citizen Advisory Committee oversees the state-wide volunteer monitoring network."

The Citizen's Advisory Committee (CAC) has not met since May 2001, and EOEA has not made clear any plans that it may have to provide further support to the CAC. Nor, to our knowledge, has EOEA communicated to the volunteer monitoring community any plans it may have to replace the CAC with an alternate oversight and guidance body. EOEA's plans, if any, to continue supporting regional or technical support centers are also unclear. If there were any way for this document to provide clarifying information on these matters, we would encourage modifications to that effect. Otherwise, to prevent confusion, it might be best to remove the reference to the CAC, or to state that the CAC operated from 1999 – 2001. From our conversations with various individuals associated with volunteer monitoring (e.g. Team Leaders, former Monitoring Support Centers, volunteer monitors), we gather that there is a great deal of uncertainty over the current and future support structure for volunteer monitoring. Many people seem to think that the system is sliding back towards a state of disorganization that occurred before the Watershed Initiative began. With accurate, current information, this document could help to dispel misconceptions that exist.

Response: Part 1 of the Integrated List was intended to provide a summary of the monitoring program and assessment methodology as it existed at the time the assessments included in the 2002 reporting cycle were completed. This cycle includes new assessments for watersheds monitored in 1997, 1998 and 1999. Part 1 will be updated in future reporting cycles to reflect the monitoring program and assessment methodology that prevailed at the time the assessments covered in the Integrated List were made. Nonetheless, it will be clarified in Part 1 that the Citizen's Advisory Committee operated from 1999-2001. The MADEP has provided minimum criteria for accepting data from external sources including volunteer monitoring organizations and will continue to accept data from outside sources if these conditions are met. An assessment of EOEA's willingness or ability to support volunteer monitoring in the future is outside the purview of the MADEP and beyond the scope of this document.

Comment: In the next section, "A Comprehensive Monitoring Strategy for the Future," reference is made to a 2001 report by USGS on developing" a cooperative statewide water quality monitoring plan for Massachusetts." The report is referenced in the appendix. Do you know if this document exists on the Web? If so, it would be helpful to reference the URL directly, in this section where the report is first mentioned. We were somewhat dismayed to learn that "The Massachusetts monitoring strategy represents a long-term goal toward which the DWM will move as monitoring and assessment resources become available." We've seen the USGS report. We think it proposes a sound strategy. We encourage the Department to take a proactive approach, including working within EOEA and with other interests to secure the necessary resources," to move towards implementation of the strategy.

Response: The USGS report entitled *Statewide Water-Quality Network for Massachusetts* can be found on the Web at http://water.usgs.gov/pubs/wri/wri014081 and this will be noted in the text of the final version. The EPA has published guidance for states on the development of monitoring strategies entitled *Elements of a State Water Monitoring and Assessment Program* (August, 2002). Many of the elements covered in this guidance are also included in the USGS report. The MADEP will utilize both reports as it formulates a strategic monitoring plan for Massachusetts. Furthermore, the MADEP continues to explore options for enhancing existing monitoring resources and capabilities.

10) Tom Burke, West Suffield, CT

Comment: … the Surface Water Quality Standards are incomplete and inadequate. Nowhere in the Standards is the issue of eutrophic status addressed. As these reports, to a large degree, are intended to be used to assess criteria for 319 grants which are specific to non-point sources which accelerate eutrophication by "cultural eutrophication," eutrophic status is as, or more, important than the Standards. Perhaps the state is avoiding eutrophication since it cannot seem to develop a eutrophic classification system which the EPA urges be incorporated in these reports.

Response: Massachusetts Surface Water Quality Standards narrative criteria at 314 CMR 4.05 (5)(c) specify that nutrients "shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication." Furthermore, the antidegradation provisions at 314 CMR 4.04(5) prohibit the discharge

from point sources of nutrients in amounts that would promote the accelerated growth of algae or aquatic plants ("encourage cultural eutrophication") and require best management practices for the control of nonpoint sources of nutrients. For purposes of assessing and listing waters on the 303(d) list, the MADEP uses "response indicators" of eutrophic conditions, such as wide ranges in dissolved oxygen concentration, high chlorophyll concentrations or biological surveys that reveal algae or plant "bloom" conditions that result in one or more impaired uses.

Comment: the Standards continue to list coliform as a criteria. The EPA had suggested that E. coli was a much better indicator back in 1986 and has pending legislation to mandate its use.

Response: The current Massachusetts Surface Water Quality Standards for recreational uses are based on fecal coliform criteria and, therefore, these had to be used when making the assessments covered by the 2002 integrated list. Pursuant to the recent passage of the BEACHES legislation the MADEP now also uses DPH regulations based on E. coli counts for assessing the recreational use at designated swimming beaches. Furthermore, the MADEP is in the process of revising the standards and is proposing the use of indicators E. coli for fresh waters and enterococci for salt waters based on recommendations of the EPA. Once these indicators are codified in the water quality standards they will be used to assess the status of the recreational uses.

Comment: "Lake sampling by the DWM is now primarily limited to biological surveys…" is analogous to having a doctor telling you that you are sick without being able to specify the illness. Any number of stressors could limit the biological diversity. According to Karr, et al, 1986, they could be related to the energy base, chemical constituents, habitat structure, hydrologic regimen or biotic interactions. And nowhere are criteria or a classification protocol using biological survey results defined.

Response: As stated in the report, at the time the watershed assessments included in the 2002 integrated list were completed lake sampling included biological surveys of the macrophyton community, *in-situ* measurements using metered probes and limited water quality sampling. This was not considered optimum and not all designated uses could be assessed using the information generated by these surveys. In general, assessments of the biological community provide a direct measure of the actual condition of the resource and they integrate conditions over a longer time frame than physicochemical analyses. Nonetheless, if impairment is detected through the use of biological "response indicators", chemical sampling and other monitoring techniques are often needed to determine causes and sources of the impairment. MADEP lake surveys have been expanded in recent years to include more intensive physicochemical sampling for this reason as well as to provide data for TMDL development.

Comment: While biological surveys have their place as an early warning system, biological surveys on the family level are but a snapshot in time. Surveys down to the genus/species level require several years of collection to present any meaningful data.

Response: As stated above, assessments of the biological community provide a direct measure of the actual condition of the resource and they integrate conditions over a longer time frame than physicochemical analyses. This holds true irrespective of whether the taxonomy is completed to the family level or beyond. However, metrics calculated using genus/species level taxonomy provide a greater level of resolution to the analysis and may serve to identify more subtle levels of impairment than do metrics based on family level taxonomy. For this reason the MADEP uses a modified version of the EPA Rapid Bioassessment Protocol III (RBPIII) to assess the benthic macroinvertebrate community that includes taxonomy at the genus/species level. Moreover, while any kind of monitoring can provide more information if it is carried out over a longer time-frame, the EPA protocols are multi-metric analyses based on comparisons between least-impacted reference sites and potentially impaired sites and are designed to be completed in one sampling season.

Comment: "Information from less intensive "synoptic surveys…" Firstly, "synoptic" surveys are not merely poor science, they are not science at all. As a point of fact, lakes that are interconnected still can, and most often do, exhibit totally independent characteristics. Secondly, what is not being said in this report is that the surveys being used are often many years and even decades old. Surely this is not the intent for reports that are required biennially. Reference the CALM requirements of "spatial and temporal."

Response: The past use of synoptic surveys is a direct reflection of the personnel and other monitoring resources available to the MADEP at the time. Their use was intended to provide a minimum amount of information that could be used to assess, in part, the recreational use of lakes and to document the spread of non-native species populations. While sufficient for this level of assessment, the synoptic surveys were not adequate for assessing other designated uses or for calculating TMDLs. As stated above, MADEP lake surveys have been expanded in recent years to include more intensive sampling; however, fewer lakes are visited annually.

11) Nashua River Watershed Association (Martha S. Morgan, Water Resources Advisor)

Comment: South Nashua River Segment 81-09, (Clinton WWTP Clinton to confluence with North Nashua River, Lancaster) had the highest total phosphorus concentration listed anywhere in the 1998 assessment (0.65 mg/l), and was listed as non-support for Aquatic Life, in part due to high phosphorus, yet nutrients are not mentioned as a cause of Category 5 listing.

Response: There are no numerical standards for nutrients in the Massachusetts Surface Water Quality Standards and the MADEP does not place waters on the 303(d) list solely on the basis of nutrient concentration data. Evidence of eutrophic conditions, such as wide ranges in dissolved oxygen concentration, high chlorophyll levels or biological surveys that reveal algae or plant "bloom" conditions that result in one or more impaired uses, may be used to add waters to the 303(d) List. In this particular segment total phosphorus concentrations were consistently elevated during all five MADEP sampling events and wide ranges in dissolved oxygen concentration were observed. Therefore, the omission of "nutrients" as a stressor was likely an oversight and this stressor will be added to the 2002 Category 5 listing for Segment 81-09.

Comment: South Nashua River Segment 81-08, (Outlet, Lancaster Millpond to Clinton WWTP, Clinton) was listed in the DEP 1998 Assessment Report as having high total phosphorus during a wet weather event. Nutrients are not listed for this segment and should be.

Response: As indicated above, there are no numerical standards for nutrients in the Massachusetts Surface Water Quality Standards and the MADEP does not place waters on the 303(d) list solely on the basis of nutrient concentration data. What is more, the MADEP would not list a waterbody based on a single elevated phosphorus value when all other values appear to be acceptable. More importantly, unlike Segment 81-09, no corroborating evidence was available to suggest that nutrients were causing any impairment to Segment 81-08. In fact, the presence of the red alga Batrachospermum sp. is often indicative of low nutrient content. It is noteworthy that phosphorus loadings, such as those that may occur in this segment during wet weather, could, in combination with other sources, contribute to use impairment in downstream segments where conditions favor the proliferation of algae or plant growth. For this reason the ongoing TMDL development activities will take upstream sources of nutrients into consideration when making recommendations for nutrient controls.

Comment: North Nashua River Segment 81-04 (Leominster WWTP to confluence with Nashua River, Lancaster) was listed in the DEP 1998 Assessment Report as having slightly elevated total phosphorus, and as a result the Aquatic Life was listed as partial support. Nutrients are not listed for this segment as a pollutant needing a TMDL and should be.

Response: While total phosphorus concentration was slightly elevated in this segment there are no numerical standards for nutrients in the Massachusetts Surface Water Quality Standards and there is little evidence to suggest that nutrients were the cause of "slight impairment" to the benthic macroinvertebrate community. The Use Summary Table in the 1998 assessment report lists nutrients as a "suspected cause" in need of further confirmation before it could be listed as a stressor in this segment. As with the South Nashua River, ongoing TMDL development in the Nashua watershed will assess the relative contribution of upstream discharges when attempting to identify causes and sources of impairment to downstream segments.

Comment: The DEP 1998 Assessment Report listed the lower portion of the Nissitissit River (from the impoundment upstream of Route 111 to the Nashua River confluence) as partial support due to a slightly impaired benthic macroinvertebrate community. No impairment was listed for the upper portion of the river from the New Hampshire state line to the Route 111 impoundment. However, the **whole** river segment from the New Hampshire state line to the Nashua confluence has been listed in Category 5 as needing a TMDL due to unknown causes.

Response: This comment is illustrative of a limitation that is inherent in the Water Body System (WBS) database that is used to store the assessments. The WBS contains a system of pre-established segments that are not redefined each time a new assessment is completed. Instead, the details pertaining to local conditions within a given segment are presented in the individual watershed assessment reports. In the case of the Nissitissit River, which is only 4.5 miles in length in Massachusetts, TMDL development will be focused on the lower third of the segment where the actual impairment has been documented.

12) EOEA Nashua River Watershed Team (Jo Anne Carr, Team Leader)

Comment: I have concerns with the listing of several segments based on limited data (single macro-invertebrate sample, chemistry sampling) for one year, when sampling in the Nashua is an ongoing endeavor. Reference data appears to be limited to 1998. The Metropolitan District Commission Division of Watershed Management (MDC) samples for biology/chemistry regularly, the DEP/DWM should contact them for verification of data. In some cases current data may controvert the conclusion of "impaired" water. For example, the issue on Malagasco Brook has been addressed. Current sampling by the MDC does not appear to support listing. Those segments needing confirmation with recent water quality data include: Chaffins Brook (MA 81-33, MA 81-35), East Wachusett Brook (MA 81-30), Gates Brook (MA 81-24), Malagasco Brook (MA 81-29) and Muddy Brook (MA 81-28).

Response: The MADEP relies on watershed assessments that are completed in accordance with the rotating watershed schedule and does not complete a new assessment in every watershed each time a new 305(b)/303(d) report is due to the EPA. Nonetheless, the MADEP did not rely on single sampling events or even data from a single year when making the most recent assessment of the Nashua watershed. The assessment report presents a complete list of the sources of data and information consulted. The year 1998 is included in the title of the Nashua River watershed assessment report because 1998 was the year of the most recent "Year 2" phase of the rotating basin schedule and thus comprises the latest MADEP monitoring data. However, the report was not actually published until January 2001 and several sources of information gathered after 1998 were used in the assessment. These include: MDC data from 1995-2000, EPA data from 1999 and other recent sources of information. The MDC is compiling physicochemical and biological data collected from 1988-1997 from tributaries to the Wachusett Reservoir with the goal of providing a long-term trend analysis. Changes in the use-support status of the streams cited above will be reflected in future watershed assessments and integrated list submittals to the EPA once the data are available to the MADEP.

Comment: The Nissitissit River (Segment MA 81-21) is listed (in the Nashua Watershed Assessment Report) as being in partial support of Aquatic Life in the lower portion. It appears that this listing is based on a single macro-invertebrate sample at two locations. The chemistry (D.O., pH, etc.) data all indicate support for designated uses. I would recommend review of current data as in those segments listed above, to confirm this listing. Further, if the Nissisit is to remain on the impaired waters list, the entire length of the Nissitissit should not be listed; the Nissitissit should be segmented as described in the WQ Assessment.

Response: Assessments of the biological community provide a direct measure of the actual condition of the resource and they integrate conditions over a longer time frame than do physicochemical analyses. The MADEP uses a modified version of the EPA Rapid Bioassessment Protocol III (RBPIII) to assess the benthic macroinvertebrate community that includes taxonomy at the genus/species level. While any kind of

monitoring can provide more information if it is carried out over a longer time-frame, the EPA protocols are multi-metric analyses based on comparisons between least-impacted reference sites and potentially impaired sites and are designed to be completed in one sampling season. The entire 4.5 mile length of the Nissitissit River in Massachusetts is listed in Category 5 due to a limitation that is inherent in the Water Body System (WBS) database that is used to store the assessments. The WBS contains a system of pre-established segments that are not redefined each time a new assessment is completed. Instead, the details pertaining to local conditions within a given segment are presented in the individual watershed assessment reports. In the case of the Nissitissit River, TMDL development will be focused on the lower third of the segment where the actual impairment has been documented.

Comment: South Nashua River segments MA 81-08 and MA 81-09 should be listed for nutrients. The data in the WQ Assessment support this conclusion. Total phosphorus is high, in segment 81-09 it is the highest in the entire basin (at .65 mg/l). Additional data is clearly indicative of nutrient enrichment.

Response: There are no numerical standards for nutrients in the Massachusetts Surface Water Quality Standards and the MADEP does not place waters on the 303(d) list solely on the basis of nutrient concentration data. Evidence of eutrophic conditions, such as wide ranges in dissolved oxygen concentration, elevated chlorophyll levels or biological surveys that reveal algae or plant "bloom" conditions that result in one or more impaired uses, may be used to add waters to the 303(d) List. Data from Segment MA 81-09 suggest that total phosphorus concentrations were consistently elevated during all five MADEP sampling events and wide ranges in dissolved oxygen concentration were also observed. Therefore, the omission of "nutrients" as a stressor was likely an oversight and this stressor will be added to the 2002 Category 5 listing for Segment MA 81-09. Unlike Segment MA 81-09, no corroborating evidence was available to suggest that nutrients were causing any impairment to Segment MA 81-08. In fact, the presence of the red alga Batrachospermum sp. is often indicative of low nutrient content. It is noteworthy that phosphorus loadings, such as those that may occur in this segment during wet weather, could, in combination with other sources, contribute to use impairment in downstream segments where conditions favor the proliferation of algae or plant growth. For this reason the ongoing TMDL development activities will take upstream sources of nutrients into consideration when making recommendations for nutrient controls.

Comment: All of the North Nashua River (MA 81-01,02,03 and 04) should be listed for nutrients. The WQ Assessment identifies phosphorus issues along the entire reach of the North Nashua River, other data within the assessment support the conclusion of nutrient enrichment.

Response: Again, there are no numerical standards for nutrients in the Massachusetts Surface Water Quality Standards and the MADEP does not place waters on the 303(d) list solely on the basis of nutrient concentration data. Total phosphorus concentration throughout the North Nashua River is generally quite low and other evidence of eutrophic conditions, such as wide ranges in dissolved oxygen concentration or biological surveys that reveal algae or plant "bloom" conditions has not been documented. While total phosphorus concentration was slightly elevated in the downstream most segment (MA 81-04) there is little evidence to suggest that nutrients were the cause of "slight impairment" to the benthic macroinvertebrate community. The Use Summary Table in the 1998 assessment report lists nutrients as a "suspected cause" in need of further confirmation before it could be listed as a stressor in this segment. Again, ongoing TMDL development in the Nashua watershed will assess the relative contribution of upstream discharges when attempting to identify causes and sources of impairment to downstream segments.

13) Ipswich River Watershed Association (Kerry Mackin, Executive Director)

These comments pertain to waterbodies and waterways in the Ipswich Basin, and to a more limited extent address Parker River basin waterways.

Comment: Note that on the Ipswich River, the levels of mercury in sediments, water column and fish tissues are higher than in other watersheds in Massachusetts, according to research by the United States

Geological Survey. Due to the very high levels in the Ipswich River watershed, further investigations of all categories should address the need to monitor mercury, and to address the possible adverse synergy of low-flow, low dissolved oxygen and high mercury levels.

Response: In 1994, the Massachusetts Department of Public Health (DPH) issued a statewide advisory on mercury in freshwater fish that encompasses all freshwaters. These waters cannot be considered as "fully supporting" the fish consumption use and, therefore, all freshwaters in Massachusetts are considered 303(d) waters with mercury as the associated pollutant/stressor. Waters that are subject to site-specific DPH mercury advisories are listed in Category 5 because these advisories are based on actual risk assessments using data collected from those waterbodies. In 1995 and 2000 the MADEP collected fish samples from the main stem Ipswich River and edible fillets were analyzed for the presence of mercury and other contaminants. A review of the data by the DPH resulted in no site-specific health advisories. Any USGS mercury data from edible portions of fish should be submitted to the MADEP and DPH in anticipation of the next Ipswich River watershed assessment. If these data meet the minimum requirements for DPH health risk assessment they should be submitted to that agency for review. Waters covered by the statewide advisory, as well as site-specific advisories, may be impacted by unconfirmed local sources or by atmospheric deposition from near- and far-field sources. While Massachusetts will continue to identify and control local sources of mercury through existing air quality and waste-site clean-up programs, TMDLs may be useful both for determining necessary mercury source reductions and for providing technical support for adopting a national mercury reduction strategy. In the case of mercury contamination from atmospheric deposition many suspected sources are beyond state jurisdiction. Many states, including Massachusetts, have requested additional EPA guidance and assistance from the EPA on this technically difficult issue.

Comment: Gravelly Brook is a cold water fishery and attains designated uses based on current knowledge. Silver Lake experiences degraded water quality at times, apparently due to stormwater discharges and possibly other sources of pollutants. Bradford Pond appears eutrophied, with overgrowth of vegetation. There is what appears to be an illegal landfill on its western shore. Stearns Pond has excessive vegetation growth. Idlewild Brook may at times experience low-flow conditions; further monitoring is recommended. Maple Meadow Brook subwatershed is also experiencing pollution problems associated with toxins and other pollutants, and should be moved to Category 5. Other tributaries experiencing flow alteration and not listed in Category 5 are Fish Brook downstream of Stiles Pond and Emerson Brook downstream of dam.

Response: The 2002 integrated list does not represent an entirely new statewide assessment. For purposes of reporting under the CWA, Massachusetts provides new assessment information only for those watersheds that have completed the monitoring and assessment phases since the submittal of the previous 305(b) Report or 303(d) List. The Ipswich watershed has not been assessed since the last 305(b) and 303(d) reports were published but is scheduled for assessment in 2003. All of the above observations may be useful to the MADEP when carrying out the next Ipswich watershed assessment. However, to be used for reporting under sections 305(b) and 303(d), the MADEP requires the following for external sources of data: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. This information will be sought and reviewed by the MADEP when developing the next watershed assessment report.

Comment: In the Parker watershed Bull Brook is a trout fishery from headwaters to inlet of Reservoir, and the Egypt River experiences flow impairment and loss of fisheries (historic alewife and smelt runs have been severely impaired due to flow alteration and prior releases of toxic chemicals). It should be moved to Category 5.

Response: Bull Brook is currently unassessed and, therefore, appears in Category 3 of the Integrated List. The Massachusetts Surface Water Quality Standards designate Bull Brook as Class A High Quality water, based on it being tributary to a water supply, but do not specify a warm-water or cold-water fishery designation. Nonetheless, the dissolved oxygen standard is equivalent to the cold-water fishery standard

of 6.0 mg/l as long as the higher priority drinking water use is met. Insufficient water quality data and related information were available to make an assessment of the Egypt River as part of the most recent MADEP Parker River watershed assessment. However, the aquatic life use was placed on "alert status" in the assessment report due to the magnitude of water withdrawals by the Ipswich Water Department. The segment could not be listed in Category 5 solely on the basis of impairment from flow alteration because flow is not a pollutant requiring a TMDL under Federal rules. The river could be listed in the future in Category 4c, however, if the aquatic life use is determined to be impaired. Documentation of "prior releases of toxic chemicals" to the Egypt River has not been provided to the MADEP in the past but should be submitted for consideration in future assessments.

Comment: The Ipswich River mainstem is flow-impaired from its headwaters throughout its entire course to the sea. The USGS hydrological model found conclusively that low-flows are diminished by an order of magnitude or more from the headwaters, affecting all downstream reaches. This flow-impairment affects its assimilative capacity for stormwater and other pollutants.

Response: The Ipswich River mainstem segments cannot be listed in Category 5 solely on the basis of impairment from flow alteration because flow is not a pollutant requiring a TMDL. However, the river is listed in Category 5 due to the presence of pollutants such as pathogens and nutrients and the non-pollutant stressor "flow alteration" also appears with this listing.

Comment: The Ipswich River from the headwaters through Middleton chronically experiences dissolved oxygen levels below the water quality standards in the upper reaches in the warm weather/ low-flow period. Thermal pollution and BOD associated with stormwater, as well as other factors, contribute to DO levels as low as 0 ppm, and typically below 3 ppm.

Response: A similar comment to this was received when the Draft 1998 303(d) list was made available for review. At that time it was not clear that low dissolved oxygen conditions in the upper segments of the Ipswich River were the direct result of pollutant sources and/or low flow. In the 1998 response-to-comments document the MADEP expressed reservations about attributing the periodic excursions below the dissolved oxygen standard to low flow when wetland drainage and groundwater recharge are naturally low in dissolved oxygen. As stated above, the Ipswich watershed has not been assessed since the last 303(d) list was published but is scheduled for a new assessment in 2003. All of the above observations could be useful to the MADEP when carrying out the next Ipswich watershed assessment. However, to be used for reporting under sections 305(b) and 303(d), the MADEP requires the following for external sources of data: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses.

Comment: The biological integrity of the Ipswich River and a number of tributaries is impaired due to flow alteration. The river does not attain its designated uses for fisheries, having experienced a loss of flow-dependent fish species and dominance of the fish community by macrohabitat generalists, which can tolerate warm water, low dissolved oxygen and ponded conditions. Even these species are decimated regularly by extreme low-flow and no-flow conditions. Further information about loss of fisheries is available from the USGS/ Mass. Div. Of Fisheries and Wildlife study, as well as the Fisheries Restoration Task Group report. Both reports are available on-line at the IRWA web site at www.ipswichriver.org. There is also a documented loss of diversity in the macroinvertebrate community at flow-impaired sites.

Response: The main stem and several tributaries to the Ipswich River are currently listed for organic enrichment/low dissolved oxygen and flow alteration. The Ipswich River watershed is scheduled for a new assessment in 2003. The new assessment will be based on the MADEP Year 2000 water quality and biomonitoring surveys as well as data and information solicited from any and all external sources such as those cited above. Results of the new assessment will indicate whether additional stressors are impairing the designated uses of the Ipswich River and its tributaries and this will be reported in the watershed assessment report as well as the ensuing versions of the Massachusetts Integrated List of Waters.

14) Saugus River Watershed Council (Joan LeBlanc, Executive Director)

Comment: The Saugus River Watershed Council conducts a comprehensive water quality sampling program for the watershed. Our staff and volunteers have been collecting and analyzing water quality for bacteria, dissolved oxygen, pH, and turbidity since 1991. A copy of the Saugus River Watershed Council's 1998 - 2001, Water Quality Report is enclosed for your reference. Water quality samples are evaluated for bacteria by the Lynn Water and Sewer Commission's water quality testing laboratory. The Saugus River Watershed Council follows State QA/QC guidelines for surface water sampling, and bacterial samples are collected using approved methods (sterile containers, sterile gloves and transport in ice chests within prescribed holding times). Laboratory analyses is conducted by the Lynn Water & Sewer Commission.

Response: The DWM reviewed the Saugus River Watershed Council's (SRWC) 1998 - 2001 Water Quality Report as part of the most recent assessment of the North Coastal watersheds, and its use for providing screening-level data is acknowledged in the MADEP assessment report. It is stated on page 15 of that report that "although the data did not meet EPA and DEP DWM's stringent data quality objectives, the information was an integral part of the assessment process." As indicated in Part 1 of the 2002 Proposed Integrated List report the DWM will accept and review data and information pertaining to the quality of Massachusetts' waters from any and all sources. However, for external sources of information including, but not limited to citizen monitoring data, the MADEP requires the following: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. The DWM is currently developing Data Submittal Guidelines that will further clarify these requirements. A Quality Assurance Project Plan (QAPP) was not available for the SRWC's monitoring program at the time of the most recent North Coastal assessment and this is still the case today. The DWM will continue to use SRWC data to corroborate other information and to highlight areas in need of further investigation. Screening data suggestive of potential use impairments may also be used to assign an "alert status" to a waterbody in future assessment reports but cannot be used exclusively to make assessment and listing decisions.

Comment: The Saugus River is currently listed as an "Impaired Water Requiring a TMDL" for nutrients, pathogens, and other pollutants. The Saugus River Watershed Council strongly recommends that all three segments of the Saugus River also be listed as impaired due to flow alterations. SRWC has been working with the Massachusetts Department of Environmental Management and other state and federal environmental agencies to evaluate and improve water flow in the Saugus River. This past summer a Saugus River Flow Study was published. The study highlighted the need for limits on water withdrawals by the Lynn Water and Sewer Commission, as well as other measures to increase regular flow in the river. Maintaining a consistent flow in the Saugus River is crucial to the Saugus River Watershed Council's ongoing efforts to restore anadromous fisheries such as alewives to the watershed. A copy of the study is available on CD by calling Mark Wamser at Gomez and Sullivan Engineers, (603) 529-4400. For additional information about the Flow Study, contact project manager Linda Marler of the Dept. of Environmental Management at (617) 626-1384.

Lack of flow in the Saugus River contributed to the largest known fish kill in recent history during August 2002. Over 100 dead fish of several species were found in the upper region of the Saugus River (just above the Lynn Water and Sewer Commission Diversion Dam). Combined lack of rainfall, and low flow resulted in dissolved oxygen levels that were less than 1.0 mg/l. Excessive noxious aquatic vegetation in the Reedy Meadow ponds may also have contributed to this situation.

Response: Flow alteration is already listed as a stressor associated with the downstream-most Saugus River segment (MA93-14). A review of the upstream two segment assessments in the MADEP North Coastal Watershed Assessment Report reveals aquatic life use impairments associated with habitat alterations that were, in part, due to low-flow conditions. "Flow alteration" will be added as a stressor to

these two segments in the final integrated list document.

Comment: The Saugus River Watershed Council has been working in partnership with several state and federal agencies and the communities of Revere, Malden, Everett, and Melrose as part of a Task Force to restore water quality to the Town Line Brook. This body of water empties directly into the Seaplane Basin portion of the Rumney Marsh Area of Critical Environmental Concern. The underlying goal of improving water quality in the Town Line Brook is to address a source of bacterial pollution to Rumney Marsh that is keeping shellfish beds closed. Water quality sampling conducted by the Saugus River Watershed Council, and additional samples processed by the Massachusetts Department of Marine Fisheries (Gloucester Lab) have all indicated that this body of water exceeds state and federal water quality standards for bacteria during both dry and wet weather. According to the Saugus River Watershed Council sampling, Town Line Brook (particularly in the Trifone Brook tributary located in Revere) has some of the highest bacterial pollution in the watershed. The communities of Revere and Malden are currently working to evaluate sources of pollution to the brook and implement stormwater treatment measures. The Saugus River Watershed Council recommends that Town Line Brook and Trifone Brook be added to the list of Impaired Waters Requiring TMDL for pathogens, nutrients, and turbidity. Additional information about the impaired status of Town Line Brook can be obtained by contacting Glenn Casey of the Dept. of Marine Fisheries at (978) 465-3553, Sam Cleaves of the Metropolitan Area Planning Council at (617) 451-2770.

Response: The MADEP welcomes data of known and documented quality from external parties. However, the MADEP cannot make assessment and listing decisions solely on the basis of the information cited above because the data were not submitted in accordance with the requirements established for accepting data from external sources. However, following discussions with the EOEA North Coastal watershed team and the SRWC, a sampling station was established on Town Line Brook and was included in the 2002 DWM North Coastal “Year 2” monitoring program carried out during May – September, 2002. Results from the 2002 DWM monitoring, as well as any other data submitted in accordance with MADEP guidance, will be used in the next North Coastal watershed assessment. It is suggested that the SRWC submit data and information in accordance with the MADEP data submittal guidelines for external data sources as soon as possible and no later than the end of the next comment period. The MADEP is concerned about the quality of these streams and will continue to consider them for listing as information becomes available.

Comment: Shute Brook in Saugus is a tributary of the Saugus River. This body of water has consistently been identified as a "hot spot" for bacterial pollution throughout the history of the Saugus River Watershed Council's water quality sampling program. Water quality samples have consistently exceeded state and federal water quality standards for Class B waters for E. coli and fecal coliform bacteria. Elevated bacteria levels have been identified during both dry and wet weather. Shute Brook meanders through a dense residential area prior to emptying in the Saugus River. While specific sources of bacteria are not currently known, it is likely that elevated bacteria levels are associated with faulty sewer systems or illegal connections. The Saugus River Watershed Council recommends that Shute Brook be added to the list of Impaired Waters Requiring TMDL for pathogens, turbidity, and nutrients.

Response: The MADEP cannot make assessment and listing decisions solely on the basis of the information cited above because the data were not submitted in accordance with the requirements established for accepting data from external sources. However, following discussions with the EOEA North Coastal watershed team and the SRWC, a sampling station was established on Shute Brook and was included in the 2002 DWM North Coastal “Year 2” monitoring program carried out during May – September, 2002. Results from the 2002 DWM monitoring, as well as any other data submitted in accordance with MADEP guidance, will be used in the next North Coastal watershed assessment.

Comment: During 2002, the Saugus River Watershed Council expanded its regular water quality monitoring program to conduct a more in-depth study of the Mill River sub-watershed which includes Wakefield Brook in Wakefield. Results of our sampling indicated that this Brook has very high levels of E. coli bacteria. Like Shute Brook in Saugus, water quality samples have consistently exceeded state and federal water quality standards for Class B waters for E. coli bacteria. Elevated bacteria levels have been

found during both wet and dry weather. Wakefield Brook is located within a primarily residential district with some industrial uses. Although specific sources of bacteria are not currently known, it is likely that faulty sewer systems or illegal connections are a major factor. The Saugus River Watershed Council recommends that Wakefield Brook be added to the list of Impaired Waters Requiring TMDL for pathogens, and nutrients. Additional information about bacterial levels in Wakefield Brook can be obtained by contacting SRWC board member and Wakefield resident Doug Heath at (617) 918-1585.

Response: (This comment is addressed in the responses to Comment 15 below)

Comment: Lake Quannapowitt is currently included on the list of Impaired Waters Requiring TMDL for noxious aquatic plants and turbidity. The Saugus River Watershed Council recommends that pathogens be added to this list. Results of water quality sampling conducted by the Town of Wakefield, Friends of Lake Quannapowitt, and the Saugus River Watershed Council all indicate that waters of Lake Quannapowitt often exceed state and federal water quality standards for both primary and secondary contact. With swimming beaches located on the Lake, restoring water quality to acceptable public health standards is a high priority.

Response: (This comment is addressed in the responses to Comment 15 below)

15) Saugus River Watershed Council (Doug Heath, Board Member)

Comment: Since 1995, the Saugus River Watershed Council (SRWC), the Wakefield Board of Health and Friends of Lake Quannapowitt (FOLQ) have detected elevated levels of total coliform, fecal coliform and E. coli bacteria in Lake Quannapowitt, the headwaters of the Saugus River in the North Coastal Basins Watershed. Copies of available analytical results from 1995 to the present are enclosed. Apparently, these levels frequently exceed State guidelines for primary and secondary contact recreational use for Class B water bodies such as Lake Quannapowitt. In addition, Lake Quannapowitt is upstream of a public water supply diversion canal used by the Lynn Water & Sewer Commission. As you are also aware, public exposure to a water body with high levels of fecal bacteria may also represent a health hazard to swimmers, boaters and wind surfers. Probably sources of fecal bacteria to Lake Quannapowitt include storm-water discharge (the lake receives untreated stormwater from approximately 30 storm drains along its shoreline), wildlife, domestic pets, and recreational swimmers during the summer months. High levels usually follow precipitation events, followed by gradual die-off and deactivation from photolysis, predation, adsorption and other factors. As can be seen by the enclosed table compiled the SRWC, levels of FC and EC in Lake Quannapowitt's outlet discharge vary significantly from month to month, ranging from zero to "too numerous to count."

The Saugus River Watershed Council follows approved State QA/QC guidelines for surface water sampling, and bacterial samples were collected by SRWC staff and volunteers using approved methods (sterile containers, sterile gloves and transport in ice chests within prescribed holding times). Joan LeBlanc, Director of the SRWC, may be reached at 978-741-1713 for questions about water-quality monitoring. Laboratory analyses for the SRWC were conducted by the Lynn Water & Sewer Commission using SM9222B/D (membrane filtration). Specific details about bacterial water-quality analyses can be obtained from Rick Dawes of the LWSC at 781-595-5200. The Wakefield Board of Health contracts with Lapuck Laboratories, Inc. of Watertown, MA for bacteria sample collection and analyses. Information about that program may be obtained from Peter Gray, Health Agent, at 781-246-6375. Samples collected by the FOLQ on May 16, 2001 and June 18, 2001 (see enclosed) were also obtained and handled in conformance with MADEP QA/QC requirements.
Please include this lake on the State's Integrated List of Waters for bacterial impairment.

Response: As indicated in Part 1 of the 2002 Proposed Integrated List report the DWM will accept and review data and information pertaining to the quality of Massachusetts' waters from any and all sources. However, for external sources of information including, but not limited to citizen monitoring data, the MADEP requires the following: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable

analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. Submitted in support of the above comment were photocopied excerpts from the Saugus River Watershed Council's 1998-2001 Water Quality Report, copies of lab data sheets from the Wakefield Board of Health files and additional isolated data and field notes. Quality Assurance Project Plans (QAPP) are apparently not available for any of the monitoring programs in question, nor were the data presented in a format that would allow for their proper validation and interpretation. Finally, no QA/QC data were reported. This submittal does not meet the requirements outlined above for accepting external data and information, and the MADEP is unable to use it to make assessment and listing decisions for Lake Quannapowitt. At this point in the process, because of serious time constraints imposed by the USEPA, the MADEP cannot seek out additional sources of data. It is suggested that the SRWC submit data and information in accordance with the MADEP data submittal guidelines for external data sources as soon as possible and no later than the end of the next comment period. The DWM takes seriously the potential contamination of Lake Quannapowitt and will use data from the SRWC, the Friends of Lake Quannapowitt and other sources to highlight areas in need of further investigation. This information, upon further review and investigation may also be used to assign an "alert status" to the lake in future assessment reports.

Comment: In recent years, the Massachusetts Department of Environmental Protection, the Saugus River Watershed Council and the Wakefield Board of Health have detected elevated levels of total coliform, fecal coliform and E. coli bacteria in Wakefield Brook, a tributary of the Mill River in the Saugus River watershed. Copies of available analytical results from 1997 to the present are enclosed. Apparently, these levels frequently exceed State guidelines for primary and secondary contact recreational use for Class B water bodies such as Wakefield Brook and the Mill River. As you know, public exposure to water body with high levels of fecal bacteria may also represent a health hazard to residents. While to my knowledge the source (or sources) of these pathogenic organisms have not been specifically identified by Town officials, the portion of Wakefield Book having the highest consistent levels is at the Albion Street culvert (monitoring location WB 6 on the enclosed map), where the stream emerges from its covered drainage system northwest of Crystal Lake. This was high-lighted in a story published in the ***Wakefield Daily Item*** last June 7th (please see the enclosed). Based on my experience monitoring Wakefield Brook since February, 2002 in both dry and wet conditions, I think that the likely source is wastewater seepage from one or more sewer lines that service homes in the brook's watershed upstream of Albion Street. Much of this area is a densely-developed residential district with numerous conduits and connections for wastewater transport. The watershed's till and bedrock aquifer is characterized by a shallow water table (especially during the Spring months), which may intercept sewer lines as well as basements.

The Saugus River Watershed Council follows State QA/QC guidelines for surface water sampling, and bacterial samples were collected by SRWC staff and volunteers using approved methods (sterile containers, sterile gloves and transport in ice chests within prescribed holding times). Laboratory analyses were conducted by the Lynn Water & Sewer Commission using SM9222B/D. Specific details about bacterial water-quality analysis can be obtained from Rick Dawes of the LWSC at 781-595-5200. The Wakefield Board of Health contracts with Lapuck Laboratories, Inc. of Watertown, MA for bacteria sample collection and analyses. Information about that program may be obtained from Peter Gray, Health Agent, at 781-246-6375.

Please include this impaired stream on the State's Integrated List of Waters.

Response: The MADEP cannot make assessment and listing decisions solely on the basis of the information cited above because the data were not submitted in accordance with the requirements established for accepting data from external sources. Submitted in support of the above comment were a newspaper article, a number of photocopied data sheets from several different laboratories, and an excerpt from the most recent MADEP North Coastal Watershed Assessment Report highlighting bacteria counts from a single DWM sampling event at two pipe discharges to the Mill River that the commenter refers to as "Wakefield Brook". Quality Assurance Project Plans (QAPP) and QA/QC data were not submitted for any of the non-DWM monitoring programs in question, nor were the data presented in a format that would allow for their proper validation and interpretation. Furthermore, both the constraints of the rotating watershed assessment cycle and the EPA requirement to complete a final integrated list

within a relatively short timeframe preclude actively contacting and soliciting reports and information from third parties during the integrated list review and comment period. Apparently "Wakefield Brook" is a local name attributed to a small tributary to the Mill River. It appears on the USGS topographical map as an isolated unnamed stream feeding Crystal Lake in Wakefield. However, it is implied from the above comment that it may flow underground from the outlet of the lake until it discharges to the Mill River. The Mill River is currently listed in Category 5 for pathogens and other pollutants. As a result TMDL development and implementation for the control of bacterial contamination will involve the identification and control of any and all sources of bacteria contributing to the Mill River whether they are actually listed on the 303(d) list or not. Nonetheless, the MADEP is concerned about the quality of this stream and will continue to consider it for listing if data are submitted in accordance with MADEP requirements. Finally, the SRWC is encouraged to work with the MADEP to promote the collection of data of known and documented quality from this stream in the future.

16) Coalition for Buzzards Bay (Mark Rasmussen and Darryl J. Paquette)

Comment: In September 2002 we submitted a request to your office, along with supporting data, to include 26 embayments located within the Buzzards Bay Watershed on the Massachusetts Year 2002 Integrated List of Waters as impaired for nutrients. While The Coalition applauds and supports the efforts of the Massachusetts Estuaries Program (MEP), we would argue that the listing of impaired waters and the work that MEP is doing are NOT mutually exclusive, and that our data supports the immediate listing of the 26 embayments for nutrients as required by law. The federal Clean Water Act (CWA) section 303, 33 U.S.C. § 1313, requires each state to "identify those waters within its boundaries for which the [technology-based or other existing] effluent limitations are not stringent enough to implement any water quality standard [WQS] applicable to such waters." 33 U.S.C. § 1313(d)(1)(A). EPA regulations and policy clarify that states must identify all segments of waterbodies which do not or may not within the next two years meet numeric water quality criteria, narrative criteria, waterbody designated or existing uses or antidegradation requirements. 40 C.F.R. §§ 130.7(b)(3), (5). Thus it is not acceptable for the state not to list threatened waters or waters that have been identified as impaired.

Response: Massachusetts lists all waters for which one or more designated uses are determined to be impaired in Category 4 or 5 of the Integrated List depending upon whether or not a TMDL is required. It is the intent of the MADEP to perform watershed assessments in accordance with both §§ 305(b) and 303(d) of the Clean Water Act during Year 3 of a five-year rotating watershed cycle. As stated in the Introduction to the 2002 Integrated List, the proposed list does not represent an entirely new statewide assessment. For purposes of reporting under the CWA, Massachusetts provides new assessment information only for those watersheds that have completed the monitoring and assessment phases since the submittal of the previous 305(b) Report or 303(d) List. In the case of the 2002 List nine watersheds, including Buzzards Bay, were not updated since the 1998 303(d) list was published. An updated assessment of Buzzards Bay is scheduled for 2003. Nonetheless, the regulation pertaining to § 303(d) requires the MADEP to consider the Coalition's request, received during the public review and comment period, to utilize new data and information on Buzzards Bay in the 2002 listing process, irrespective of the state's routine rotating watershed assessment schedule. This review is described in further detail in the response to the Coalition's final comment below.

Comment: In developing its list of all threatened or impaired waters, the state must use "all existing and readily available water quality-related data and information." 40 C.F.R. §§ 130.7(b)(5), (7). This data includes, at a minimum, waters identified in the most recent state section 305(b) report as "partially meeting" or "not meeting" designated uses or "threatened;" or waters "for which water quality problems [including fishing, shellfishing, or recreational] have been reported" by local, federal or state agencies, **members of the public,** or academic institutions. 40 C.F.R. § 130.10(d)(6). This inclusive list of sources of information means that the state may not exclude information because of arbitrary limitations on what it considers acceptable data, nor may the state refuse to list any impaired or threatened waterbody segment because it does not know the source of the pollutants causing the impairment.

Response: The regulation governing § 303(d) is actually worded such that states are required to

"assemble and evaluate all existing and readily available water quality-related data and information to develop the § 303(d) list". This does not mean that states must use all data and information regardless of the quality or representativeness of that information. In fact, the EPA strongly encourages states to establish minimum data requirements and acceptable criteria for submitting data for consideration for listing. The MADEP has not set "arbitrary limits on what it considers acceptable data", but has established minimum criteria for submitting data from external sources based on sound scientific principles and guidance from the EPA. Data can only be considered if they are in a format that can be analyzed and interpreted by the state within a reasonable time frame. The state may elect not to use data and information from external sources if documentation is lacking or incomplete with respect to the appropriateness of using the information for use assessments. This may include insufficient information pertaining to sample collection procedures, QA/QC measures, representativeness of sampling sites and events, and whether data were collected under appropriate conditions for comparisons with water quality standards.

Comment: Since 1992, The Coalition for Buzzards Bay has coordinated the Buzzards Bay Water Quality Monitoring Program, or Baywatchers, to document and evaluate nitrogen-related water quality and long-term ecological trends in Buzzards Bay. The program is recognized as the primary source of long-term data assessing the health of each of the Bay's 30 major harbors and covers from the Westport Rivers to Quissett Harbor on Cape Cod. Until the inception of this program, no comprehensive database existed on nutrient concentrations and the extent of eutrophication in the most sensitive areas of the Bay ecosystem. In the past decade we have consistently documented numerous embayments in Buzzards Bay that exhibit often severe water quality and natural resource degradation related to nutrient overloading.

The Baywatchers Buzzards Bay Water Quality Monitoring Program has partnered with the Coastal Systems Group at the University of Massachusetts – Dartmouth School for Marine Science and Technology (SMAST) personnel since the beginning of the monitoring program in 1992. The SMAST Coastal Systems Group, headed up by Dr. Brian Howes, is also the same lab that is managing MEP that was cited in the Addendum of the Proposed Massachusetts Year 2002 Integrated List of Waters – Part 2. All methods used to produce the Baywatchers data, from collection to analysis, and many Quality Assurance/Quality Checks (QA/QC) are followed as listed in the 1996 Environmental Protection Agency (EPA) approved Quality Assurance Project Plan (QAPP) and the recently revised, and EPA and Massachusetts Department of Environmental Protection (MADEP) approved, July 25, 2001 QAPP. This QAPP includes the QA/QC methods for data management. Therefore, all testing, analysis and data should meet the requirements of Level 3 Monitoring Guidelines from the Commonwealth of Massachusetts Summary of Water Quality, 1998, MADEP, Division of Watershed Management and can be used based on the requirement for external sources of information.

We look forward to working with you to make sure that the final list of impaired and threatened waters is as comprehensive and accurate as possible, and includes the 26 embayments suggested by The Coalition for Buzzards Bay:

Embayment	Municipality
Nasketucket River	Fairhaven
Eel Pond	Mattapoisett
Westport River, East Branch	Westport
Apponagansett Bay	Dartmouth
Slocums River	Dartmouth
Hammett Cove	Marion
Weweantic River	Wareham
Little River	Dartmouth
Wareham River	Wareham
Marks Cove	Wareham
Little Bay	Fairhaven
West End Pond	Cuttyhunk Island
Wild Harbor River	Falmouth

Snug Harbor, West Falmouth	Falmouth
Little Sippewisset Marsh	Falmouth
Broadmarsh River	Wareham
Mattapoisett River	Mattapoisett
Aucoot Cove – Inner	Mattapoisett/Marion
Wild Harbor	Falmouth
Westport River, West Branch	Westport
Sippican Harbor – Inner	Marion
Squeteague Harbor	Bourne/Falmouth
Onset Bay – East River	Wareham
Nasketucket Bay	Fairhaven
Eel Pond, Bourne	Bourne
Little Buttermilk Bay	Bourne

Response: In response to the Coalition's request, the MADEP reviewed the September 2002 recommendation and associated data for including 26 embayments located within the Buzzards Bay Watershed on the Massachusetts Year 2002 Integrated List of Waters as impaired for nutrients. The MADEP found that the submittal did not meet its criteria for using data and information from external sources. However, further discussion between the two parties resulted in a memorandum from Rick McVoy of the MADEP to Tony Williams of the Buzzards Bay Coalition that provided guidelines for data submittal and requested clarification on several issues pertaining to the Coalition's data. These included, but were not limited to, the need for more information on the exact station locations and timing of sampling, the relationship of sampling events to tidal cycles, descriptions of the boundaries of proposed segments under consideration for listing, a copy of the 1996 QAPP, and actual data tables for all variables measured by the Coalition. Shortly thereafter, Dr. Brian Howes of the SMAST Coastal Systems Group who is managing the Massachusetts Estuary project (MEP) offered to assist the Coalition with reviewing and interpreting available data in an effort to determine whether enough data and information existed to make assessments of the embayments in question. In addition, SMAST staff met with Coalition staff to discuss their listing request and to review the completeness and remaining uncertainties with respect to existing nutrient data. After reaching consensus with the Coalition, SMAST prepared a Technical Memorandum for submittal to the MADEP, dated March 31,2003, that concluded that "of the 26 embayments put forward for 303(d) listing by the Coalition for Buzzards Bay, 11 appear to be nutrient impaired and should be considered by DEP for 303(d) listing. At present, it is not possible to differentiate the cause of the nutrient enrichment (natural/anthropogenic) or the sources or management solutions. Additional data collection and synthesis by the MEP will be required to address these issues." SMAST went on in the memorandum to present a summary of their findings for each of the embayments under consideration. With the completion of a thorough review of the original Coalition submittal as well as the SMAST Technical Memorandum, the MADEP continued to have reservations about certain metrics offered in evidence of nutrient enriched conditions. For example, it was difficult to relate the Coalition's Health Index Score to the Massachusetts Surface Water Quality Standards without the associated data that comprised the index. Nonetheless, it was acknowledged that severe conditions could be identified by the information provided and a decision was reached by the MADEP to place considerable importance on the "substantial loss of eelgrass" as an indicator of aquatic life use impairment resulting from nutrient over-enrichment. The SMAST Technical Memorandum presented historical and present-day eelgrass maps for all of the embayments except Eel Pond, as prepared or compiled by the MADEP eelgrass mapping program administered by Mr. Charles Costello. As the result of the review of these maps and other related data and information the MADEP will include the following waters in Category 5 of the Final 2002 Integrated List as impaired by nutrients. All but one of these (i.e., Squeteague Harbor) are also impaired by pathogens as evidenced by shellfish bed closures.

Wareham River	Squeteague Harbor
Westport River	Slocums River
East Branch Westport River	Weweantic River
West Branch Westport River	Beaverdam Creek
Apponagansett Bay	Hammett Cove

The remaining sixteen waters will be considered during future listing cycles as the results of the MEP assessments become available.

17) Cape Cod Commission (Eduard M. Eichner, Water Scientist)

Comment: Staff urges DEP to include all Massachusetts Estuaries Project (MEP)-eligible waters in the Integrated List. The Integrated List includes an addendum and table containing all the coastal waters to be addressed under the MEP. The addendum states that a standard methodology for assessments of these coastal waters is being developed and that as a result of the assessments that will be completed under the MEP waters will be added to Category 5 as indicated.

Commission staff are concerned that this characterization does not place most of these waters in any of the categories on the Integrated List. As mentioned in the previously submitted Coalition for Buzzards Bay request, many of these waters have adequate information to place them in Category 5. Staff supports this recommendation and suggests that DEP utilize the data collected by the School of Marine Science and Technology at University of Massachusetts, Dartmouth (SMAST) to prepare the MEP preliminary ranking to place all the MEP-eligible waters in either Category 3 or Category 5. It is clear from available information that coastal waters, such as Mashpee River, West Falmouth Harbor, and Great Pond, should be listed for nutrients and organic enrichment. Placing these embayments on the Integrated List will support the need to provide complete funding of the six-year timeline for the MEP and will provide both DEP and EPA with a sense of MEP progress as the Integrated List is reviewed on a regular basis.

Response: The MADEP presently stores watershed assessment information in an electronic database called the Water Body System (WBS), but is in the process of implementing a new system called the Assessment Data Base or ADB. The WBS was never populated with a file for every surface water or segment thereof in Massachusetts and the ADB will not be either. Rather, these databases contain only those segments for which assessments of one or more designated uses were actually completed at one time or another over the years. As assessments are carried out in new waters, these are added to the database resulting in greater coverage of Massachusetts' surface waters over time. The MADEP acknowledges that with the new integrated list format, all surface waters can be categorized whether or not they have ever been assessed. However, the time and resources are currently not available to georeference all surface waters and "front-end load" them to the assessment database. The EPA guidance for the development of the 2002 305(b) and 303(d) reports allowed states to move toward the development of a completely integrated list while recognizing that not all states would do so right away, nor would states choosing to use the integrated format necessarily incorporate all of its features in 2002. Therefore, it is acknowledged that many of Massachusetts' surface waters that have never been assessed are missing from the 2002 Integrated List, although by default, they are considered Category 3 waters. Moreover, it remains unlikely that, with the resources available at present, unassessed waters will be entered into the new assessment database. There are 89 estuaries to be covered by the Massachusetts Estuaries project. Most of these have yet to be assessed using the standard methodology being developed for that project.

In September, 2002, immediately before the proposed 2002 Integrated List was due to the EPA, the Massachusetts Estuaries Project's Embayment Water Quality Assessment Interim Report covering priority embayments 1 – 20 was published. While there was insufficient time to review this report and incorporate assessments into the proposed Integrated List at that time, the MADEP has since reviewed it and has included assessments of most of these embayments in the final 2002 Integrated List. These are summarized in Appendix 1 of Part 2 of the Final Massachusetts Year 2002 Integrated list of Waters.

Finally, as part of the public review of the Massachusetts Year 2002 Integrated List, the Buzzards Bay Coalition requested that 26 embayments located within the Buzzards Bay Watershed be listed in Category 5 as impaired by nutrients. Following a review that is described in detail in the responses to Comment 16 earlier in this document, a total of ten waters were 303(d)-listed based on the substantial loss of eelgrass as an indicator of aquatic life use impairment resulting from nutrient over-enrichment.

These waters are also identified in Appendix 1 of Part 2 of the Final Massachusetts Year 2002 Integrated list of Waters. The remaining sixteen waters will be considered during future listing cycles as the results of the MEP assessments become available.

Comment: There are 46 Cape Cod lakes listed in the Integrated List, but Cape Cod has over 900 freshwater bodies. Staff urges DEP to include, at the very least, all so-called "named" Cape Cod ponds, not otherwise listed, in Category 3. The list of "named" ponds is an interim product of the Cape Cod Pond and Lake Stewardship (PALS) program, which includes late summer snapshot water quality sampling with SMAST and volunteers of over 170 ponds during the summers of 2001 and 2002. The list of named ponds with PALIS and Commission numbers is attached for your review.

It is our intention to provide DEP with the snapshot monitoring results once the Cape Cod Pond and Lake Atlas is completed. The Atlas was one of the products included in the Watershed Initiative grant that provided the initial funding for the PALS program. Work to complete the Atlas is presently being conducted with funds from the Community Foundation of Cape Cod and will be available in February. Additional monitoring data from volunteer groups that sampled throughout the summer is also becoming available at this time. This data and the snapshot sampling data will likely increase the number of ponds eligible to be included in Category 5.

Response: Information pertaining to the MADEP assessment databases is provided in the response to the previous comment. The MADEP acknowledges that with the new integrated list format, all surface waters can be categorized whether or not they have ever been assessed. However, the time and resources are currently not available to input all waters to the assessment database and still meet reporting deadlines imposed by the EPA. The MADEP looks forward to receiving information pertaining to Cape Cod lakes that may be generated by the PALS or other projects. MADEP will update its database as information becomes available and future assessments are completed. It is important to note, however, that data submitted for use in making assessment and listing decisions must meet the following requirements: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. This information should also be submitted along with the data report when it becomes available.

Comment: Staff urges DEP to place Baker Pond in Orleans in Category 5. Baker Pond is included the Integrated List as a Category 3 pond. The Baker Pond Water Quality Assessment (Eichner, *et al.,* 2001), which includes thirteen dissolved oxygen profiles during 2001, clearly indicates low dissolved oxygen conditions in the hypolimnion and deterioration of DO conditions when compared to 1948 conditions. This Assessment report was sent to Rick McVoy in August while DEP was preparing the Integrated List. This assessment documents that there is "Organic enrichment/low DO" in Baker Pond and should place it in Category 5.

Response: DWM staff reviewed the Baker Pond Water Quality Assessment (Eichner, et al., 2001) prior to completing the 2002 Integrated List and made the following assessment relating to the placement of Baker Pond in Category 3. As indicated in the above responses the DWM will accept and review data and information pertaining to the quality of Massachusetts' waters from any and all sources. For external sources of information including, but not limited to citizen monitoring data, the MADEP requires the following: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. Because the report on Baker Pond did not meet all of these requirements there are questions about the acceptability of the data.

Even though the data, as submitted, do not meet all of the necessary qualifications for using outside data the DWM still reviewed the submittal and has made this determination. When looking at hypolimnetic oxygen depletion as a potential impairment we look not only at the existence of depletion, but also the frequency, duration and areal extent of it. The data indicate oxygen depletion below 11-12 m on Baker

Pond during the summer. Since the area of Baker Pond below 11-12 m is estimated as less than 10% of the total pond surface (based on the DFW map enclosed in the report and MassGIS) it was not considered enough to constitute impairment of the pond.

Lastly, the comparison of current DO profiles to data from 1948 is questionable given the comment made in Eichner, et al. (2001) that " …the temperature profile … suggests that stratification of the pond did not occur until later in the summer that year …" That factor make it easily conceivable that hypolimnetic oxygen reductions were not as severe that year. It is also important to remember that analytical methods are likely to be quite different between 1948 and 2000, which means comparisons should be made cautiously.

Comment: Staff urges DEP to place Pilgrim Lake in Orleans in Category 5. Pilgrim Lake is included in the Integrated List as a Category 3 pond. The 3 Pond Study (Scanlon and Meservey, 2001) which includes eleven dissolved oxygen profiles during 2000, clearly indicates low dissolved oxygen conditions in the hypolimnion occurring at the onset of stratification. The Study report was sent to Rick McVoy in August while DEP was preparing the Integrated List. This assessment documents that there is "Organic enrichment/low DO" in Pilgrim Lake and should place it in Category 5.

Response: The DWM staff reviewed the 3 Pond Study (Scanlon and Meservey, 2001) prior to completing the 2002 Integrated List and made the following assessment relating to the placement of Pilgrim Lake in Category 3. First, there are questions about the acceptability of the data in this report. It is important to note that data submitted for use in making assessment and listing decisions must meet the requirements outlined in the prior responses: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses.

Even though the data, as submitted, do not meet all of the necessary qualifications for using outside data DWM still reviewed it and, as with the Baker Pond Study, has made the following determination. When looking at hypolimnetic oxygen depletion as a potential impairment we look not only at the existence of depletion, but also the frequency, duration and areal extent of it. The data indicate oxygen depletion below 5.5 - 6 m on Pilgrim Lake during the summer. Since the area of Pilgrim Lake below 5.5 - 6 m is estimated as less than 10% of the total pond surface (based on the DFW map enclosed in the report and MassGIS) it was not considered enough to constitute impairment of the pond. Furthermore, low hypolimnetic dissolved oxygen concentration is typical of stratified ponds. Based on the information provided it cannot be determined whether or not the low dissolved oxygen values observed were due solely to natural conditions.

18) Edward A. Baker, Mashpee, MA

Comment: I strongly believe the Mashpee River Estuarine Portion (Quinaquisset Avenue to the mouth) should be listed in the final 2002 303d list for nutrients, organic enrichment, low DO and noxious aquatic plants in addition to pathogens. I maintain sufficient scientific documentation plus DEP and public observations of the impairments exist to justify their inclusion. Some of the key scientific data consists of two reports issued by the group contracting the State for the $12.5 million S.E. Massachusetts Estuary Project, namely the School for Marine Science and Technology, UMass-Dartmouth (SMAST). The overall embayment (Popponesset), includes the Mashpee River Estuary, has been defined as having sufficient monitoring and the number 1 priority in the Cape Cod and Islands Watershed. Additionally two reports prepared for DEP by the Cape Cod Commission provide further support for the estuary's impairments.

Response: In September, 2002, immediately before the proposed 2002 Integrated List was due to the EPA, the Massachusetts Estuaries Project's Embayment Water Quality Assessment Interim Report covering priority embayments 1 – 20 was published. While there was insufficient time to review this report and incorporate assessments into the proposed Integrated List at that time, the MADEP has since reviewed it and has determined that the following assessments will be added to the Final Integrated List:

WATERBODY	AQUATIC LIFE USE	STRESSOR	SHELLFISH USE	STRESSOR
Mashpee River	Impaired	Nutrients	Impaired	Pathogens
Shoestring Bay	Impaired	Nutrients	Impaired	Pathogens
Popponesset Creek	Not Assessed	--	Impaired	Pathogens
Popponesset Bay	Impaired	Nutrients	Support	--

19) Albert Orlando, Mashpee, MA

Comment: I strongly believe Mashpee River from Rt. 28/Quinaquisset Ave to the mouth at Popponesset Bay and Shoestring Bay should be listed in the final 2002 303(d) list for nutrients, organic enrichment, low DO and noxious aquatic plants in addition to pathogens. Mashpee volunteers and significant Mashpee Town funds have been applied to the evaluation of these sub-embayments of Popponesset Bay as well as the Bay itself. The scientific integrity of the data costing five years of volunteer's time and several hundred thousand dollars of taxpayer money is first rate. This portion of the data was taken under the management of and evaluated by the same group that is being funded for the SE Mass Estuary Project by the State. I hope the Mashpee Taxpayer's financial and volunteer monitoring investment will be sufficient to include these verified impairments in the final list of impaired waters for the impairments identified above.

Response: In September, 2002, immediately before the proposed 2002 Integrated List was due to the EPA, the Massachusetts Estuaries Project's Embayment Water Quality Assessment Interim Report covering priority embayments 1 – 20 was published. While there was insufficient time to review this report and incorporate assessments into the proposed Integrated List at that time, the MADEP has since reviewed it and has determined that the following assessments will be added to the Final Integrated List:

WATERBODY	AQUATIC LIFE USE	STRESSOR	SHELLFISH USE	STRESSOR
Mashpee River	Impaired	Nutrients	Impaired	Pathogens
Shoestring Bay	Impaired	Nutrients	Impaired	Pathogens
Popponesset Creek	Not Assessed	--	Impaired	Pathogens
Popponesset Bay	Impaired	Nutrients	Support	--

20) Kenneth H. Molloy, Cotuit, MA

Comment: Shoestring Bay is listed in the Category 5 Waters "Waters requiring a TMDL" with Pathogens as the only pollutant needing TMDL. I strongly believe that Shoestring Bay should be listed in the final 2002 303(d) list for Nutrients and Organic enrichment/Low DO in addition to Pathogens. A significant amount of scientific documentation exists to justify this inclusion.

Some of the key scientific data is in three reports issued by the School of Marine Science and Technology, UMass-Dartmouth (SMAST) on water quality of the Popponesset Bay System. The Popponesset Bay System has also been defined with the number 1 priority by the SE Mass. Estuaries Project. Shoestring Bay is a sub-embayment of the Popponesset Bay System, and one of the areas with the worst water quality. Additionally two reports prepared for DEP by the Cape Cod Commission provide further support for Shoestring Bay's impairments.

Although I believe the scientific justification is in the above reports, the massive spring algae blooms in Shoestring Bay are also well documented in local newspapers.

In summary, I believe scientific data from the source selected to perform the $12M estuaries project for the Commonwealth, reports by the Cape Cod Commission and funded by DEP/BRP, and documented observations by individuals justify listing Nutrients and Organic enrichment/Low DO for Shoestring Bay in the final 2002 303(d) List.

Response: In September, 2002, immediately before the proposed 2002 Integrated List was due to the EPA, the Massachusetts Estuaries Project's Embayment Water Quality Assessment Interim Report covering priority embayments 1 – 20 was published. While there was insufficient time to review this report and incorporate assessments into the proposed Integrated List at that time, the MADEP has since reviewed it and has determined that the following assessments will be added to the Final Integrated List:

WATERBODY	AQUATIC LIFE USE	STRESSOR	SHELLFISH USE	STRESSOR
Mashpee River	Impaired	Nutrients	Impaired	Pathogens
Shoestring Bay	Impaired	Nutrients	Impaired	Pathogens
Popponesset Creek	Not Assessed	--	Impaired	Pathogens
Popponesset Bay	Impaired	Nutrients	Support	--

21) Cotuit Bay Condominium (Burton Kaplan, Managing Agent)

Comment: This letter, commenting on the Division's listing of Impaired Waters recently submitted for public comment, is respectfully sent to point out that neither Shoestring Bay (bounded by both the Town of Barnstable and the Town of Mashpee) nor the Santuit River which runs north from Shoestring Bay is mentioned in any of the listings provided for public comment. Personal observation as well as a number of studies which I'm certain are available to your offices have noted the decline in both quality as well as quantity of those waters. The trustees of Cotuit Bay Condominium would very much appreciate the inclusion of those bodies of water in your listings, noting that they too require attention before their being overlooked makes them beyond reclamation.

Response: In September, 2002, immediately before the proposed 2002 Integrated List was due to the EPA, the Massachusetts Estuaries Project's Embayment Water Quality Assessment Interim Report covering priority embayments 1 – 20 was published. While there was insufficient time to review this report and incorporate assessments into the proposed Integrated List at that time, the MADEP has since reviewed it and has determined that the aquatic life use and shellfish use of Shoestring Bay are impaired by nutrients and pathogens, respectively. This assessment will be reflected in the Final Integrated List. The Santuit River itself was not assessed as part of the Estuaries Project, nor has it ever been assessed by the MADEP. Nonetheless, the process of developing a TMDL for nutrients in Shoestring and Popponesset bays will most certainly include consideration of the Santuit River as one potential source of nutrients to those bays and therefore would receive the attention that you request.

22) Robert J. and Margaret D. Wineman, East Orleans, MA

Comment: We are volunteers with the Town of Orleans Water Quality Task Force and The Pleasant Bay Alliance. Data of the Alliance of years 2000 and 2001 show that water quality of four of the salt water Ponds of the upper reaches of Pleasant Bay in Orleans is "impaired or threatened for one or more uses and requires a TMDL." The ponds are: Meetinghouse Pond, Kescayogansett (Lonnies) Pond, Areys Pond, and Paw Wah Pond. Alliance data show that the Buzzards Bay Eutrophication Index is in the Poor range (<35). Other indicators (total nitrogen and dissolved oxygen) confirm the impaired conditions. Our comment is that we believe that these water bodies should be included in Category 5 of the Massachusetts Year 2002 303(d) List of Impaired Waters.

Response: The MADEP will accept and review data and information pertaining to the quality of Massachusetts' waters if the following are provided: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information is documented in a citable report that includes QA/QC analyses. The MADEP was not in receipt of the Pleasant Bay Alliance data referred to in this comment at the time of the preparation of the MADEP Cape Cod Watershed Water Quality Assessment Report and the 2002 Proposed Integrated List of Waters, nor has it subsequently received these data. Rather, these data may be in the possession of Dr. Brian Howes

of the SMAST Coastal Systems Group who is managing the Massachusetts Estuary project (MEP). The MEP is a collaborative effort between the MADEP, the School of Marine Science and Technology at the University of Massachusetts, Dartmouth (SMAST) and interested parties to assess the quality of 89 estuaries in southeastern Massachusetts and to recommend measures to be taken to restore those waters that are found to be impaired. The entire project is scheduled for completion in six years over the course of which all data and information will be assembled for each embayment and reviewed for adequacy and completeness. Data collection to fill information gaps will be planned and assessments will be completed to determine which embayments are actually impaired and in need of TMDLs as a step toward their restoration. To this end a standard methodology is being developed for assessing the embayments and, over the course of the project, assessments of the individual embayments will be completed and submitted to the MADEP. Those found to be impaired will be included with the 303(d) list of impaired waters (i.e., Category 5 of the Integrated List) in future revisions. Subsequently, TMDLs and management recommendations will be developed. The MEP's first Embayment Water Quality Assessment Interim Report covering priority embayments 1 – 20 was published back in September, 2002. However, an assessment of the Upper Pleasant Bay and associated waters is scheduled for a later phase of this project and was not available for this integrated listing cycle.

23) Watertown Conservation Committee (Charles C. Bering, member)

Comment: We are writing, as members of the Watertown Conservation Commission, to urge the DEP to add Sawins Brook in Watertown to its 2002 List of Impaired Waters, pursuant to §§ 305(b) and 303(d) of the Clean Water Act. Sawins Brook originates in Watertown and drains a substantial portion of the town, emerging from a culvert at Elm Street and flowing approximately 6/10 of a mile to discharge to the Charles River. Volunteer monitoring as well as DEP's own monitoring show that the brook has frequent high fecal coliform counts in both dry and wet weather. Highlights of monitoring results summarized by Mr. Roger Frymire for a presentation to the Watertown Conservation Commission included the following:

• The Town of Watertown submitted monitoring results showing a dry weather count of 3,900 fecal coliform (#100 ml) in 1995 at the Sawins Culvert, in reponse to EPA's §308 letter.

• EPA Clean Charles 2005 Core Monitoring data for 2001 at Sawins Brook near the mouth of the Charles showed dry weather fecal coliform counts ranging from 212 to 1,892 #/100ml and a wet weather count of 240,000 #/100ml

• Field samples collected by Mr. Frymire and analyzed by EPA's New England Regional Lab showed…fluctuating and frequently very high fecal coliform counts all along the exposed portions of Sawins Brook. Mr. Frymire also reports that the brook smells of sewage during storms.

These results suggest that more extensive monitoring would show that the brook does not meet fecal coliform standards supporting primary or secondary contact recreational use. Morever, it contributes to the Charles River not supporting primary recreation uses. Charles River Watershed Association 2002 monitoring data for points in the vicinity of the Sawins Brook outlet suggest that there are loadings of fecal coliform to the river in this area. While Sawins Brook is not the only contributor, evidence of periodic high counts at the mouth of the brook makes it likely that this stream is an important source of fecal coliform in the Charles River.

Response: As indicated in Part 1 of the 2002 Proposed Integrated List report the DWM will accept and review data and information pertaining to the quality of Massachusetts' waters from any and all sources. However, for external sources of information the MADEP requires the following: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. Although none of the data and information included in this particular comment was submitted in accordance with these requirements, the MADEP is familiar with the ongoing EPA "Clean Charles 2005" core water quality monitoring program and is aware of the quality management system associated with it. The Clean

Charles 2001 Monitoring Program Report that contains data on Sawins Brook was actually published in November, 2002, which was after the Integrated List was already publicly noticed for review. However, following a review of those data, a decision was reached to include Sawins Brook in Category 5 of the Final Integrated List due to the presence of pathogens. Note that it is actually listed as "Unnamed tributary locally known as Sawins Brook".

Comment: Sawins Brook is also likely to be impaired for pollutants other than pathogens. The Watertown Conservation Commission funded an evaluation of a site that includes Sawins Pond in 1998. The Commission was interested (and remains interested) in the potential for protecting the pond as a conservation area and for use as an outdoor classroom and passive recreation site. The study area including the pond has been classified as a MADEP Tier 2 Site. Sawins Pond flows into Sawins Brook, and received water from Sawins Brook and Williams Pond upstream. Limited sampling of the area confirmed the presence of polyaromatic hydrocarbons (PAH) and PCBs in soil and metals (arsenic, barium, silver and lead), oil, grease, TPH and one PAH (bis-ethylhexyl) in surface water. Based on limited available data, the 1998 evaluation found a significant risk of harm to human health would exist with the desired public use of the site. (Additional information on this study can be obtained from the Watertown Conservation Commission, 617-972-6426.)

Response: The MADEP welcomes data and information of known and documented quality from outside parties. However, this submittal does not meet the requirements outlined above for accepting external data and information. At this point in the process, because of serious time constraints imposed by the USEPA, the MADEP cannot seek out additional sources of data. Nonetheless, the DWM takes seriously the potential contamination of Sawins Pond and its watershed and will use the information provided in this comment to highlight areas in need of further investigation. This information, upon further review and investigation may also be used to assign an "alert status" to the Sawins Brook watershed in future assessment reports.

24) EOEA SuAsCo Watershed Team (Mike Fleming, Team Leader)

(Note: This comment has been paraphrased from the original e-mail that, by way of illustration, contained direct excerpts from the 1998 303(d) List and the Proposed 2002 Integrated List.)

Comment: The 1998 303d list included four previously unassessed streams that exhibited impaired benthic invertebrate communities due to unknown causes and/or sources. These were: Elizabeth Brook (Stow), Indian Brook (Ashland), Eames Brook (Framingham), and Pine Brook (Wayland). As stated in the 1998 document, "these brooks were added to the 303 (d) list, but further investigation will be required to determine the causes of impairment". Of these four, only Eames Brook is listed in Category 5 (i.e., 303d list) of the Proposed 2002 Integrated List with "cause unknown", "noxious aquatic plants", and "exotic species" presented as stressors. The other three brooks, (Elizabeth Brook, Indian Brook, and Pine Brook) are listed as Category 3 Waters (i.e., "No Uses Assessed"). Shouldn't these three brooks, like Eames Brook, be listed as Category 5 ("Waters requiring a TMDL") with "cause unknown" as a stressor? Furthermore, shouldn't "impaired benthic invertebrate communities" be stated here to document the reason for listing?

Response: In 1996 the benthic macroinvertebrate communities in the above-mentioned four brooks were determined to be "moderately impaired" using a modification of the EPA Rapid Biomonitoring Protocol II (RBP II). As explained in the Introduction of the 1998 303(d) List, "DEP uses RBP II analyses as a screening mechanism for assessing aquatic life use-support. Waterbodies exhibiting either no impairment or severe impairment with RBP II need not be assessed further. However, RBP II assessments of many waterbodies fall between these extremes into the "moderately impaired" category that extends over a wide range of water quality conditions. With the finer level of resolution offered by the RBP III, some of these same waterbodies exhibit much less impairment than indicated initially by the RBP II. For this reason, DEP has set a minimum requirement of the RBP III analysis in order to make a valid determination of aquatic life use-support for most waters". This policy is echoed in the Introduction to the Proposed 2002 Integrated List, as well: "… the MADEP has established the RBP III analysis as a minimum requirement for purposes of listing waters in Category 5 unless the RBP II assessment is definitive …". Hence, it appears that the

303(d)-listing of the four brooks in 1998 was in direct conflict with this policy. A review of the original technical memorandum describing the biomonitoring efforts at these streams in 1996 suggests that the macroinvertebrate community was impaired and that non-point sources of nutrients were suspected as the cause, although this could not be confirmed. Nonetheless, they will be added to Category 5 of the 2002 Integrated List to be consistent with the 1998 303(d) list. For these cases the presence of a pollutant would need to be confirmed prior to the initiation of TMDL development. It is noteworthy that Indian Brook and Pine Brook were visited again in 2001 and will be analyzed in accordance with RBP III guidelines. Although the results are not yet available they should be useful in confirming whether or not the aquatic life use is supported in these waters. Finally, while "impaired benthic invertebrate community" may be a more useful descriptor for a stressor than "cause unknown", it is not available for use in the EPA database used to store assessments (i.e., Water Body System). It is the intent of the DWM to present the details of the impairments and their causes and sources (if known) in the individual DWM watershed assessment reports.